HISTORY

OF

CHRONIC PHLEGMASIÆ,

OR

INFLAMMATIONS,

FOUNDED ON

CLINICAL EXPERIENCE AND PATHOLOGICAL ANATOMY,

EXHIBITING A VIEW OF

THE DIFFERENT VARIETIES AND COMPLICATIONS OF THESE DISEASES,

WITH THEIR

VARIOUS METHODS OF TREATMENT.

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TRANSLATOR'S PREFACE.

THE History of Chronic Phlegmasiæ is unquestionably the *chef d'œuvre* of the most remarkable medical writer of the present day. For pure observation, just and discriminating views, and rigid adherence to the spirit of the inductive philosophy, few medical works can compare with it. No where else in medical literature is there to be found, a more copious array of facts carefully observed—morbid alterations met with after death connected with the antecedent symptoms—and the modifying effects of remedies minutely pointed out. Assailed as the other productions of this author have been with unprecedented virulence and acrimony of criticism, the present has extorted praise even from the most violent opponents of the physiological school, and has been acknowledged to be "a model of knowledge and originality in medicine."

In giving an English version of this work, the Translators would have wished to preserve as accurately as possible, both in form and spirit, the descriptions and sentiments of the author. Those who are acquainted with the style of M. Broussais, will acknowledge that this would be no easy task. To retain all the harshness and abruptness of the original would not comport with the genius of our language, and to give to the translation a smooth and polished style, would not only be to sacrifice all resemblance to the original, but also to deprive it of its peculiar force and boldness. The translators have therefore paid more attention to the rendering of the descriptions and opinions of the author accurately, than to the style, and if success has not attended their labours, they can at least aver that no pains has been spared to effect it.

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TO THE THIRD AND FOURTH EDITIONS.

When I published in 1816 the second edition of the *History of Phlegmasiæ*, I thought it incumbent upon me to allow the text to remain unchanged, as a sort of monument which should mark with precision the point from which I had commenced to erect the physiological doctrine. However, on more mature deliberation, I became sensible that there was one part of this work which might be improved, and another which must necessarily retain its original aspect. In fact, the prolegomena, consisting of general propositions, independent of the circumstances in which the author was placed at the period when this work was written, was susceptible of being much extended, and so altered as to comport with the present state of the science, without this at all affecting the accuracy of the narration: accordingly I have entirely rewritten it in the third edition. But when subsequently, the author represents himself as yet a young practitioner in the midst of an army constantly in motion, and in military hospitals formed at the instant in order to supply the necessities of the service, he could not, without falsehood, tell his readers that he had treated his patients otherwise than he had done at that period. He could not conscientiously exhibit himself as wiser and more skilful than he actually was. I have, therefore, been compelled to republish the narration of my first campaigns, and the reflexions made by me on the early cases confided to my care, without alteration. All that I could do, was to correct in the notes the errors which I believe myself to have committed, and

I have not hesitated to perform this duty in the third and subsequent editions, by arranging the facts with which this work is filled under the principles of the physiological doctrine—a doctrine which has continued to advance to the present moment. I have thus endeavoured to conciliate the interests of truth with those of science and humanity. The reader will judge whether I have accomplished this double object.

The fourth edition has received but very slight modifications, and only in the preliminary considerations; but these are rather corrections than additions.

PREFACE

TO THE FIRST EDITION, IN 1808.

MEDICINE is enriched by facts only: to furnish new facts would then be to afford new lights; but when all the facts are, as it were, known, or at least when it is difficult to advance any that have not been previously related by some observer, the physician, who is desirous of performing his duty to mankind, should devote himself to comparing them. It does not suffice that a fact is published, for science to receive all the advantage which can be derived from it. The numerous observations spread over the pages of our periodicals, become truly useful after a long period only, when science has made such advancement as permits new conclusions to be drawn from them.

The facts contained in the most voluminous repertories and academic collections, are not less sterile, when accumulated without order or collected without motive. But if they be arranged according to their degree of analogy, if interrogated separately, as was done by the immortal Morgagni, if compelled mutually to illumine one another, an unexpected light will quickly burst upon our sight, and we will see the horizon of science enlarge itself.

I experienced this to a certain extent, when, with the intention of rectifying my views respecting hectic fever, I collected, after the example of TRNKA, *(Historia febris hecticæ omnis ævi observata medica continens,)* the facts dispersed in the works of different authors. These researches, however, left in my mind an immense void: how many circumstances respecting which I could wish to be enlightened, and which had not been even indicated! With how many useless details has not my attention been wearied! How many mis-

placed reflections to lead me astray respecting the causes and nature of the disease, or respecting the always marvellous effects of medicaments! It was clear that each author had, in compiling, an entirely different object. How could the justice of inductions drawn by me from the connexion of facts thus mutilated or disfigured, be depended upon! It was necessary to be parsimonious of conclusions, and never to go beyond great generalities.

The same obstacle will always arrest the physician who desires to treat a more or less circumscribed subject from the observations of others, until it is universally agreed what must be related, and what can and ought to be concealed, in order to detail a case in a proper manner. So long as the art of relating the phenomena of diseases shall not have acquired this perfection, which perhaps is closely connected with that of the science, he who shall wish to enlarge his ideas respecting any species of pathological affections, will find himself compelled to ascend to the first source, and to collect himself the facts, which nature, always uniform in her operations, never ceases to present to us.

Such was the task which I imposed upon myself, as soon as I became charged with a medical service of any importance. I particularly desired thoroughly to examine chronic affections, a scourge the more formidable, as it inspires its victims with little alarm, and against which we are the less provided, as it exhausts the patience of physicians, discourages, and disgusts them from observation.

But I was not slow in perceiving that it was impossible to acquire clear and satisfactory general ideas respecting any species of morbid affection, except by studying its individual varieties; and that no one could flatter himself with knowing a variety, unless he had the means of accurately tracing the cause, the progress, and the termination of every disease. But how were faithful representations of all these objects to be collected, how accumulated without being confounded, in a large hospital, in this moving picture of human infirmities, where a thousand different symptoms are opposed, interfere, distort each other, and strike at once all the senses of the physician? How can he hope to preserve these images in their primitive simplicity? How above all can he flatter himself with being able to reproduce them when

necessary, and to present them with method to the mind, which must examine them attentively to discover their resemblances and differences? Does the weakness of our organs permit so painful a degree of, and such long-sustained action? The scrupulous observer cannot then dispense with separately tracing the complete history of diseases, until he believes himself to have passed in review the great majority of cases.

In recommending complete histories, we intend that this expression should be taken in its most extended acceptation. Every disease has two possible terminations: thus, when the efforts of the physician shall not have been crowned with the desired success, he cannot regard the case as terminated, until he shall have followed the disease to the dissolution of the organism; I say to the dissolution of the organism, for there is no pathological change which may not impress a particular modification on the phenomenon which restores our bodies to the laws of inorganic matter. If dead bodies have sometimes appeared to us mute, it is only because we were ignorant of the art of interrogating them. By frequently comparing, after death, the state of the organs with the symptoms which had predominated during life, we learn to refer the latter to their true source—to distinguish the alterations of purely sympathetic actions from those due to the idiopathic lesion of an apparatus—we rectify the false opinions we have entertained—habituate ourselves to be circumspect—become skilful in distinguishing the influence of external agents from those essentially dependent on the regular succession of morbid phenomena; in a word, we perfect ourselves in all the branches of the physiological medicine.

When we have for a long time observed and compared according to this method, the next thing is to form conclusions; but it is necessary to do this with extreme prudence: it is here that the extent of genius shows itself. He who does not generalize enough, leads us to believe that a part of what he has observed is lost to him; he who falls into the opposite excess, and decides positively, without appeal, shows his presumption and his pride; both evince that their views are narrow; they will never render any great service to the art.

It is not sufficient for the physician who would enlarge the

boundaries of the science, to be born with the happiest dispositions, to read much, to see much, to meditate much: if during a certain number of years he does not follow the route we have traced; if, content with observing in detail, at the moment of his visits, he collects only general notes; if he limits his curiosity for anatomical knowledge to the examination of extraordinary cases, or to those which appear to him uncertain, he will never escape error. Having never examined all the forms of diseases, he can preserve but very imperfect representations of them, and such as are entirely dissimilar to the originals. Consequently, whenever he wishes to institute a comparison, he will deduce false inferences, and will hence be exposed to the most calamitous shipwrecks, from numerous rocks equally dangerous; if a bigot to his own opinions, or to those of others, he will force every fact to bend to his false theory, and will proceed from error to error to the termination of his career: if he is naturally inconstant, or still preserves sufficient freedom of mind to perceive the numerous contradictions which imperfectly observed facts never fail to exhibit, he will abandon every species of doctrine, deliver himself up to the blindest empiricism, or fall into a deplorable scepticism.

Such is, we doubt not, the origin of all those ridiculous systems which formerly deformed the most beautiful of the professions, and which, even at present, seem to be reproduced as if to arrest its flight, and prevent its following the progress of the other natural sciences. It is from this vicious method of observation—sometimes even upon fugitive recollections, which no attempt has ever been made to render permanent by notes, and which are obscurely recalled to mind at need, to deform them anew by collating them—that there are even at the present time composed that immense host of medical constitutions, and histories of epidemics, a single reading of which we are scarcely able to endure, and which appear to increase the riches of the art only because they overthrow and confound them.

Will then the observers of man ever be the only persons who know not how to observe? Will they never cease to merit this humiliating reproach, which resounds at present even in our schools: *all theory becomes useless in practice?*

I am willing that physicians who wound themselves with the weapons of their adversaries, should condemn vain hypotheses, and the monstrous phantoms of the imagination, but let them not confound these latter with true theory; let theory be for them what it is in the other sciences, *the result of facts reduced to principles;* let them observe well, compare skilfully, and draw just conclusions, and they will possess a theory which will never abandon them at the bed-side of the sick, and one they will certainly respect, since each of them will be able to enrich and perfect it.

All the circumstances, whose concurrence are required to form a good observer, can be united in hospitals only. In the most extended civil practice, the facility of interrogating dead bodies will always be wanting. It is then upon hospital physicians that the laborious task of extending the boundaries of the healing art is more particularly imposed: others ought most assuredly to second them, since there are certain objects which they also are able to study deeply: such are many aberrations of the sensitive and motive faculties, owing rather to the abuse, than to the privation of the enjoyments of life. But even upon these points, the physician devoted to his own practice, can never push inferences to any great extent, without running the risk of deviating from the right path, unless he enlightens himself constantly, by the more exact experience of the hospital physician, habituated to comparing the dead with the living. Since the labours of the illustrious Morgagni have been known, what physician has dared to write a practical treatise without demanding in some way the sanction of the propositions advanced by him respecting the causes and nature of diseases? Wo to him who has not done so, if he be not sufficiently rich in his own resources to dispense with an obligation so often necessary!

The clinical and anatomico-pathological observations of hospitals, always fruitful in themselves, will, nevertheless, give different results, on account of the difference of subjects, of country, of situation, of exposure, &c. This is not the place to treat of these questions; I shall content myself with remarking, that army hospitals have particularly afforded me the kind of diseases I have endeavoured to investigate thoroughly in this trea-

tise. In fact, more formidable than the most terrible epidemics, which appear but in certain circumstances; and are foreseen, dreaded, and combated with all the resources of the art; chronic affections, the causes of which are always in action, are not susceptible of interruption, and rarely abandon their victims before immolating them; so that if we recapitulate at the end of some time, the different kinds of death—we find that they have destroyed more soldiers than all other diseases united. Such at least is the result I have constantly obtained from my necrological tables.

I have mentioned my formerly having collected a great number of observations, in order to understand better that slow fever which insensibly consumes a multitude of unfortunate individuals, and prematurely conducts them to the tomb, and said that I was little satisfied with the result of my researches. Aware of the number of examples of these diseases met with in military hospitals, where I had served a long time before having the chief direction of the treatment of internal affections, I was surprised that no physician had deigned to devote himself particularly to them,* whilst treatises on acute affections were multiplying without end. The true history of the cause and development of consumptions which I was fortunate enough to light upon in the early part of my new career, and post mortem examinations, quickly apprised me that medical writers had preserved silence respecting the greater number of consumptions, only because they had wanted perseverance in the study and observation of acute diseases, and that they had feared to weaken the confidence they wished to inspire in their therapeutic method.

In fact, the great majority of those whom I found consumed by a chronic disease, were all victims to an inflammation simply, which had not been cured in its acute stage. It is true that very frequently the want of success depended either upon the patient not having sufficiently early sought the assistance of art, or from his indocility having rendered it useless. But how many cases

* It is perceived that I was not acquainted with the work of Pujol de Castres. He considers chronic phlegmasiæ as so many phlegmons. See the *Examination of Medical Doctrines, &c.*

have I not also found in which the disease, constantly maltreated, had been evidently misunderstood!

Hence, I was soon persuaded, that if some friend of humanity would occupy himself in collecting in the same work, accounts of a great number of these acute diseases, degenerated into chronic, of which authors cease to treat, as soon as they have no longer any hope of curing them; if he would compare patiently the detailed histories of each of them; if he would elucidate those as yet only menacing the lives of the patients, by those whose fatal termination has permitted an examination of the state of the organs; I am persuaded, I say, that he would be enabled to save a great number of victims already condemned; that he would teach practitioners to prevent evils which they are not always able to repair; in a word, that he would greatly advance the science. I was too sensible of my own feebleness to dare to hope to accomplish so difficult a task; but the want of a guide in whose steps I might advance, and the necessity, the indispensable necessity under which I was of dissipating the numberless doubts which beset my mind, all rendered it a duty to employ this mean, since it seemed to me the best of all those which I could pursue.

On perseveringly observing all the diseases of debility that I met with, I perceived that the majority of the cases appertained to chronic inflammations of the lungs, and of the organs of digestion. I believed from this, that it was important first to know the enemy we are most frequently engaged with. Thus, after having studied it for some time, I undertook to connect the facts, and it seemed to me that I had acquired new ideas.

Called to Paris by private business, I communicated these ideas to many physicians of distinguished merit, who thought them really what they appeared to me, and advised me to publish them. I ventured to engage in it, and in despite of the multiplied obstacles, principally resulting from the bad state of my health, and the too limited stay that I was permitted to make in the capital, I accomplished the compilation of this work, in which I have endeavoured to follow the inflammations I have spoken of, in their various shades, complications, and termi-

nations. Although restricted to this species of affections, I am perfectly convinced that it includes the greater number of chronic diseases, since phlegmasiæ of the chest alone, which constitute the first part of it, would afford this result, at least in northern climates.

The thorough examination of pulmonary inflammations, has proved to me that they are connected by such multiplied relations, that it was impossible to treat of them separately, as was always obstinately done. I have first proved that they incessantly transform themselves into one another; afterwards, on following them into the chronic state, I discovered that they all terminate in phthisis pulmonalis. I am hence compelled, in order to complete their history, to undertake that of this latter affection, and the particular study that I have made of it, has convinced me that I have followed the best method, and that it was impossible to give a good treatise on phthisis, so long as it was wished to separate it from the other phlegmasiæ of the lungs.

I already hear the reader object that phthisis does not always depend upon the inflammations of which I speak; that if it often results from them, it is still more frequently produced by an entirely different mechanism; that it is not essentially of a phlogistic nature, and that it does not merit the name of *phlegmasia.*

I think myself consequently obliged to premise, that the examination of the mode of action of all the causes of phthisis, has convinced me that they maintain in the respiratory organs a phlogosis analogous to catarrh, to pleurisy, and to peripneumony, or an irritation more or less resembling that of these phlegmasiæ, and that the production of tubercles is always its definite result.

This mode of viewing the subject, or if you will, this theory, cannot be false, since it is entirely founded on the connexion of facts the most generally known and the easiest to verify. Its advantages are, to dissipate the obscurity which overshadows the causes and nature of phthisis pulmonalis; to cause the disappearance of a host of unfortunately too striking contradictions in the published writings on this disease; to simplify the treatment, and render it more certain than it has ever yet been; to correct that scandalous and fatal versatility remarked

in the conduct of some physicians during the protracted course of phthisis pulmonalis; to accustom practitioners early to foresee it in a host of slight affections, many of which do not appear to be very formidable; finally, to multiply the resources, and to confirm the success of the prophylactic treatment.

The phlegmasiæ of the abdomen, which constitute the subject of the second volume, are far from being exhausted in this work. I have not met with a sufficient number to study them all thoroughly; I am therefore restricted in treating *ex professo* to those which I have observed frequently enough, and under sufficiently varied forms, to venture to believe that I have seen at least the most common cases. The phlogoses of the mucous membrane of the digestive canal and those of the peritoneum, are the only ones respecting which I possess satisfactory data.

The comparison of the facts which I have collected respecting inflammation of the portion of the mucous membrane lining the internal surface of the stomach, has convinced me that this phlogosis was little known, although of very frequent occurrence, and that many errors were daily committed in its treatment. I have attributed these errors to the want of a monograph of this disease, and to the disposition of most of the physicians of our days to regard all the affections of the stomach as saburral or asthenic. Gastritis having never been described except in its highest degree of intensity, all the slightly marked shades of it must be misunderstood, and maltreated, until they have become sufficiently exasperated to manifest their true character. I have attempted to remedy this public calamity, by disposing in a methodical series such gastrites as are so obscure as frequently to escape diagnosis, and by endeavouring to connect them on the one hand to the most inflammatory varieties, and on the other to purely nervous sensibility and true feebleness of the stomach.

The phlogosis of the internal membrane of the large intestines was better known. I have first recalled what Professor Pinel has told us respecting it, who, in comparing it to all the other mucous phlegmasiæ, placed it in its true situation. Afterwards, I have laboured to show the numerous relations that connect it with gastritis. Rejecting the ancient divisions, I have endeavoured to embrace

in the same view all the irritations of the intestinal mucous membrane, of whatever degree: thus I have arranged, in order of decreasing intensity, after the most violent dysentery, those multiform diarrhœas which are met with at every step in the treatment of acute disease, as in that of chronic affections. I have established the identity of these innumerable fluxes, from their seat, cause, and treatment, the indications of which last I have developed, and have demonstrated its astonishing simplicity. It shall be determined by experience even, whether this last point, always the most important in a medical work, has been somewhat perfected in this treatise.

Inflammation of the membrane covering the external surface of the abdominal viscera, was previously known from the beautiful classification of the illustrious Pinel, by some treatises on the diseases of women in child-bed, by an inaugural dissertation defended at the school of Paris, and by some notices on pathological anatomy, published in periodical works. Nevertheless, many varieties of the acute, and almost all the shades of the chronic stage, had never been described. I have established them in the same manner as I pursued with the preceding phlegmasiæ. The causes of these affections seem to me to have been till then very badly observed; the comparison of facts has authorized me to submit on this point some ideas, whose value time will determine. Unfortunately the treatment of protracted phlogoses of the peritoneum was not susceptible of great amelioration; nevertheless the theory of the causes will shed new light upon it. It will moreover teach us to render chronic cases less frequent, by treating acute peritonitis in a more rational manner, and by preserving patients in general from the agents whose irritating action is more particularly directed upon the serous membrane of the abdomen.

HISTORY

OF

CHRONIC PHLEGMASIÆ.

INTRODUCTION.

It is known to all physicians who walk hospitals, that there are met with in these establishments a number of pale, emaciated patients, who are daily losing their strength, and advancing slowly towards the tomb, with a more or less distinctly characterized hectic fever, and sometimes without any appreciable febrile action.

The reflections required for the composition of my work on hectic fever,* had fixed my attention upon these unfortunate and too long neglected individuals; and as soon as I entered into the service of military hospitals, I resolved to devote myself to the particular study of chronic diseases.

When I sought for a guide among the most illustrious authors, and those to whom medicine confessedly owes its greatest advances, I found only confusion—every thing was conjectural. I immediately perceived that facts were wanting, although pathological anatomy had already been much enriched by Bonetus, Morgagni, Lieutaud, and by the investigations made after the example of the celebrated Bichat, by distinguished physicians of the school of Paris.

The deficiency was not in the number of post mortem examinations, but in the individual histories of cases, and in the connexion of the symptoms. At the present advanced state of the science, a good treatise on chronic diseases can no longer be a

* *Recherches sur la fièvre hectique, considérée comme dépendante d'une lésion d'action des différens systémes dans vice organique.* Paris, an 11.

compilation, and still less a collection of observations, registered by different reporters, and collated by a person who has not seen the patients.

It was necessary for the presentation of this matter in a luminous manner, that a hospital physician should himself undertake the laborious task of collecting and digesting the histories of diseases. That these histories might be complete, it was indispensable for him to watch the progress of the disease to its termination, and that he should verify it positively, by assuring himself of the continuance of the health of the patient, or by making an autopsy of his body. This labour should not be confided to students, because the art of observing is difficult, and every reporter in framing his account, is influenced by his peculiar views and principles, and interprets nature differently.

It also appears to me, that the most happily organized physician requires the whole of his faculties to examine all the symptoms of a protracted disease; I even persuade myself that it is only by dint of repeating these examinations, that he can habituate himself to the language of suffering nature—that he can ensure the rigorous and uniform progress of the medicine of observation—that he can, by rectifying the doctrine, extend it, render it more correctly appreciated, and contribute to the progress of the science of man, by perfecting the art of curing his numerous infirmities.

I was sensible that so perfect a treatise could not be prepared except by a clinical professor of great ability, of indefatigable zeal, and sufficiently devoted to the science, to sacrifice to it moments that are most frequently employed in an entirely different manner by practitioners of great reputation.

Such powerful obstacles made me fear that a work of this kind would be still long desiderated; and upon the whole, determining that medicine should speedily possess one, I resolved to make in my military practice, a clinical study of chronic diseases, for my own instruction, and for that of a small number of young pupils, who desired to study with me. To two of these I owe a public acknowledgment for the constant assiduity with which they have aided me during three years, in investigating the previous histories of the patients, in observing the symptoms

at certain periods of the day, and in making careful post mortem examinations. I have the pleasure of alluding to Messrs. Treille and Bernard,* who, attached at that period to regiments, often rendered me the service of verifying the cure or relapses of the patients, by investigations subsequent to the discharge of these from the hospitals, and I am indebted to them for a great number of particulars which rarely come to the knowledge of the physician.

All the rest of the labour was my own. I daily noted, with exactitude, the state in which I found the patients whose histories I recorded. Upon this head I have never allowed myself to be indebted to any one. All that I aver myself to have seen, I have actually seen, and I have never trusted the evidence of my senses in relation thereto, until after having assured myself that they would not lead me into error. Three consecutive years have been employed in this manner, in recording cases of chronic diseases from their commencement to their termination.

The result of this labour I now present to the public, because it has appeared to me that it might be subservient to the history of these affections. But they are too numerous for me to be able, or even for me to attempt to collect them all in one treatise. I am consequently restricted in my work to the selection of the chronic phlegmasiæ of the principal viscera, to connect, to discuss them, and from these to draw conclusions. The frequency of these diseases have appeared to me to exact that the reflections of practitioners should be first called to them.

The special object of this work is, then, the study of chronic inflammations.

* M. Treille, after having served for a long time with distinction as chief surgeon in the army hospitals, and occupied for many years the place of *Chirurgien-major* of the first regiment of Cuirassiers of the Royal Guard, is at present *Chirurgien-major* of the corps of *Sapeurs-Pompiers*, and a practitioner in Paris. M. Bernard died at New Orleans, a victim to the eagerness of the sick, to employ him from the moment of his arrival. For if he had been allowed the leisure to acclimate himself, the inhabitants would have retained an excellent practitioner, and ourselves a very valuable friend.

The above is what I wrote in 1808.* I must add at present that the disorders produced in all the other parts of the economy by inflammation, do not differ from those occasioned by it in the viscera. What is said in this work respecting the chest and abdomen, may consequently be applied to all the organs. The physicians who have followed the progress of the physiological doctrine, are already far in advance of the period when it was pretended to make particular entities of the disorganizations of the lungs, of those of the breast, of those of the testicle, of those of the neck of the uterus, &c. An osteo-sarcoma, a spina ventosa, a pneumonia, and a chronic gastritis, recognise the same principles. The true observer views them only as the results of irritation of the tissues which vary solely in circumstances that are incapable of at all changing the essence of the disease. These propositions will receive elsewhere all the development of which they are susceptible. (See the *Examination of Medical Doctrines, &c.)*

* The years 1805, 1806, and 1807, were employed in collecting the observations of the first and second editions. The third edition, published in 1822, was somewhat augmented by notes, and new cases with their commentaries.

PROLEGOMENA.

OF INFLAMMATION IN GENERAL.

It is from an inflammation, which destroys with greater or less rapidity one or more of the viscera essential to life, that a majority of the human race perish. Every practitioner, who is accustomed to contemplate the ruins of this admirable edifice, which he has been unable to prevent from crumbling to pieces, is convinced of this truth. If we look over the immortal work of Morgagni, we find, in every page, unequivocal traces of inflammation.* If we interrogate persons suffering under any chronic affection, the greater number complain to us of a fixed and permanent pain in some internal part; whilst the fever, and the decay in which we see them, makes us too often foresee that they will perish from the consequences of a phlogistic disorganization of a viscus. If we cast an attentive eye on the symptoms of acute diseases, they reduce themselves most commonly to a derangement of the circulation accompanied with a more intense local fever, with tumefaction and redness of the organ, if the organ is visible; if it be not so during life, we may after death convince ourselves of the existence of tumefaction.

Such is the succinct history of a great portion of the diseases that afflict our species, and which proves to us how common the phlegmasiæ are. Is it then unreasonable to be so bold as to ask whether they are perfectly known, and whether medicine may not hope for new lights from a more profound study of these diseases?

1st. *What idea ought we to form of inflammation?* 2d. *What modification is produced in this phenomenon by differences of tissues and of vital properties?* 3d. *What influence does inflammation exercise upon the functions in gene-*

* It is, however, necessary that these traces should have been always justly appreciated. We will return to this question. See also the *Examination of Medical Doctrines, &c.*

ral? Such are the questions which it is necessary to consider, before undertaking the history of chronic inflammations of each viscus separately.

I. GENERAL IDEA OF INFLAMMATION.

Tumefaction, redness, heat, and *pain,* are the phenomena which are regarded as the fundamental characters of the inflammatory state. We will make some reflections upon this definition, and shall inquire whether it would not be better to consider inflammation under a more extended point of view.

The vital modification producing these four phenomena, has its seat in the capillary vessels of the diseased part, and evidently depends upon the augmentation of their organic actions. Inflammation is then primarily the effect of an increase of this action. Nevertheless, it must be confessed that all augmentation, even when considerable, of the organic actions, does not produce the four phenomena which we are told indicate phlegmasia. Their existence is subordinate to the structure, and to the vitality of the parts in which the organic action is accelerated. Thus, unless we would invent as many names as there are differences in the results of the morbid augmentation of the capillary action in the different parts of the body, we must consider inflammation in an infinitely more extended point of view, than we have yet dared to do. Let us apply this reasoning to facts.

This modification, which we say consists in an increase of the organic action, is seated in the capillary vessels of the diseased part; but as these capillaries give passage to different fluids, and as their degree of susceptibility varies exceedingly, the colour of the tumefied fasciculus, which depends upon the accumulation of fluids, and the pain, which is only the alteration of the sensibility, are also very variable.

When the irritated capillaries can admit all the parts of the blood, the tumefaction is red. As the tissues in which the sanguine capillaries predominate, have the greatest sensibility, the red inflammatory tumefactions are the most painful. As these capillaries have the greatest mobility, and act very promptly upon their fluids, the inflammatory sanguineous tumours are also those, in which the chemical changes are the most rapid. The

sensation of heat is the immediate effect of these chemical changes; and this sensation therefore becomes most frequently troublesome in the sanguine inflammatory tumefactions. Redness and heat are not then essential characters of inflammation in general: I view them rather as signs denoting the degree of the sanguine inflammation.

Since the fluid upon which the irritated capillaries act is not always the same, and as the degree of irritation varies, the chemical changes that are subordinate to these two conditions, must present great differences. The material products also of inflammation must then appear to us subject to many varieties.

Thus, inflammation presents an infinity of shades, which it may also be useful to study, notwithstanding the numberless labours and researches to which this phenomenon has given rise. We shall hereafter endeavour to correct its definition.

II. MODIFICATION OF INFLAMMATION ACCORDING TO THE DIFFERENCES OF TISSUE AND VITAL PROPERTIES OF THE AFFECTED PART.

Let us examine inflammation first in the capillary fasciculi, in which it shows itself with most activity, and trace it gradually to those in which it appears with least intensity. In each of these fasciculi let us commence by the most acute state, and stop at the point where it commences to be chronic. We shall there again take it up to follow the phlogosis into its most obscure shades.

1st. *Acute Inflammation considered in the general Cellular Tissue, and in the Parenchymata rich in Sanguine Capillaries.*

When a fasciculus of sanugine capillaries, of greater or less extent and thickness, concurring in the formation of cellular tissues and of parenchymata, is in a state of very violent inflammation, there truly exist tumefaction, redness, heat, and pain; there is a very manifest accumulation of blood in the diseased part; and many experiments seem to prove that this blood is with difficulty interchanged with that circulating in the rest of the circulatory apparatus.

This extraordinary action may cease at its commencement,

and before having acquired the degree of energy of which we know it to be susceptible. This change is announced by a diminution of the pain, and by such other phenomena as the calm has a tendency to produce. The redness and tumefaction diminish in the same proportion, and the part no longer retains any trace of the morbid action of which it has been the seat. This is *delitescence.*

When this premature disappearance of the inflammation is followed by the renewal of this phenomenon in another part, it is termed *metastasis;* it is considered as a *repercussion* when it follows the effect of medicines that act by diminishing the sensibility of the part, and by contracting its vessels; finally, those who have by degrees weakened the inflammatory force by bleedings and emollients, view it as a *resolution.* Be this as it may, we shall always consider it as the cessation of the inflammatory action before it has arrived at its *summum,* (height,) and without any appreciable alteration of the fluids or solids of the affected part.

If the inflammation continues, instead of stopping, and if the vessels are in extremely violent action, the entire fasciculus may lose its vitality at the moment of its greatest irritation; and from vital action the part seems to pass into putrefaction, and exhibits to us only a black and already fœtid mass, called an *eschar.*

This gangrene is generally attributed to excess of inflammation. We shall not endeavour to determine whether the death of the phlogosed capillaries precedes the decomposition of the fluids, or whether the excess of animalization, or the deleterious quality of the latter, first destroys the vital activity of the solids. We think both mechanisms equally possible, and even probable, under certain circumstances.

But there is another species of gangrene, which takes place after a slight and momentary inflammation; sometimes even the irritation does not proceed further than the production of pain; the redness changes to violet and black, without the appearance of either swelling or heat. Is not the gangrene called *senile,* that of malignant pustules, that of eschars of the skin in acute gastro-enterites called *fevers of bad character,* &c. examples of those inflammations which seem to stop at their commencement, by leaving their capillary fasciculi in a fatal torpor? Do we not see that, in certain subjects, the phlegmasia maintains itself for

many days at the degree which imparts redness, that in others it advances almost to the extent of suppuration before terminating in gangrene; that finally, all the medicaments having the property of blunting the sensibility, very readily produce gangrene, if imprudently applied to the phlogosis of persons debilitated by long-continued diseases?

Gangrene thus considered, always then supposes a pre-existing inflammatory action: it is hence one of the terminations of phlogosis.

The inflamed sanguine capillaries are also liable to another species of torpor which transforms the tumour into a red, renitent, and apparently inorganic mass. In the lungs, this condition is called *carnification* and *hepatization;* in the cutaneous inflammations, and the phlegmons of the cellular tissue, it is termed *callosity.* I shall designate it by the term *red induration.* This change is not always a disorganization. If we macerate in water, portions of hepatized lungs, and wash them several times, they become again permeable to air. I know not whether during life, the lungs recover from this state of induration; but some observations incline me to believe that it is compatible with existence during a considerable length of time: in this case the red induration differs essentially from gangrene. On the other hand, I should notice that we very often observe evident traces of death and of sphacelus, in the centre of a mass of hepatization, whilst the circumference presents as yet only the characters of induration. As to the red induration of the cellular tissue caused by phlogosis, we know that it is susceptible of resolution. Moreover it may be conceived, that the excess of these congestions finally produces the degeneration of the inflamed tissue.

When sanguine inflammation does not terminate either in leaving the part living, or in transforming it into a gangrenous eschar, after it attains its height, which takes place, as a mean term, between the ninth and fourteenth day, it is seen gradually to decrease, until it becomes entirely dissipated. But whilst the irritation runs through the second part of the inflammatory circle, alterations in the fluids and very often in the solids of the affected part, are manifested. Then there is observed a *collection or exudation* of a white, creamy, inodorous and bland liquid, called pus.

The *collection* of this material product of inflammation sup-

poses that the part is cellular, and susceptible of a more or less considerable dilatation and enlargement. It occurs then more readily in cellular phlegmon than in the other inflammations of the red, thick, and energetic fasciculi. Thus abscesses are more common in this tissue than in the parenchymata. Immediately on their formation, all irritation ceases, except that depending upon the distention of the parts, unless there be a complication with another phlegmasia. The abscess exhibits at the same time, alteration of the liquids and solids. Pus appears to be the result of chemical changes produced in the fibrine, gelatine, and albumen of the blood, by the local irritation. Perhaps this change is one of the causes of the diminution of this action.

The collection of pus modifies the tissue in which it is formed, in such a manner, that after the cure, it appears lessened, condensed, less extensible, and its cells being contracted or destroyed, are no longer capable of receiving into them any accumulation of fat. Such is the first and least degree of disorganization, which can result from the phlegmasia.

If the arterial fasciculus, in which the inflammation diminishes, be distributed in a very dense parenchyma, little favourable to collections of pus—and if the vessels terminate on surfaces communicating with the exterior of the body, the material product of the inflammation is eliminated as it is formed, and is mingled with the excretion of the membrane upon which it is deposited: this happens in pneumoniæ which terminate by a resolutive expectoration. The thickness of the sanguine fasciculus assimilates this phlogosis to the cellular phlegmon, which it surpasses in violence, because the lungs are the most sanguineous of all the viscera; but the disposition of the bronchial vesicles affords to the pus an excretory route, which renders abscesses in this organ more rare than in the cellular tissue.

The material product of inflammation, whether it be collected in an abscess, or exude upon a surface communicating with the exterior, is assuredly not all immediately excreted. A part, even a very considerable one of this product is resorbed and enters into the circulation; the known activity of the absorbent vessels, whether they run to the great apparatus of this name or terminate in the venous capillaries, lead us to presume this; and the particular state of the urine and other secretions renders it certain.

Many authors, struck with the appearance of a white liquid in the urine—with the consistence and acid odour of the sweat—and with the augmentation of the excretion of the mucous membranes, at the period of the termination of phlegmasiæ which have attained their *height*—have not hesitated to pronounce that there was always a formation of pus, even when no collection or local purulent exudation was perceptible. According to them, resolution is but a termination by suppuration, in which the pus was resorbed. For myself, I think that if any thing can distinguish resolution from that premature extinction of inflammation which I have indicated under the name of *delitescence*, *repercussion*, &c. it is the alteration of the fluids which have constituted the matter of the engorgement, and their conversion into a liquid more or less allied to the pus of phlegmonous tumours.

Such are the most ordinary march and effects of acute inflammation of the cellular tissues and of the principal parenchymata; but when the phlegmasia is moderate from its origin, or when, after having been violent, it decreases and continues in a slight degree, the phenomena which we have indicated are differently modified, and others are observed.

But we cannot enter into this investigation, until after having examined acute inflammation in all the tissues which are susceptible of it.

2d. *Acute Inflammation considered in the Capillaries of the Secretory Glandular Tissues.*

The salivary glands, the pancreas, the lachrymal glands, the prostate, and the testicles, do not suffer acute inflammation, without the cellular tissue surrounding them, or which is interposed between the small glandular masses of which they are composed, partaking of their inflammation, becoming developed, red and injected with blood. The pancreas, composed of more dense granules, and less surrounded by cellular tissue, is not as liable as the other glands to acute inflammation. The thyroid and thymus must be, as respects phlogosis, connected with the parotids. When the kidneys are included in the phlegmasia of the cellular tissue which embraces them, they suffer a violent phlegmonous inflammation; but if the irritation extend to them from the membrane of their pelvis, or from the cellular folds between their papillæ, it is always less intense and

less rapid, though abscesses may form in their parenchyma. Sometimes the testicle seems to be a prey to acute inflammation, limited by its tunica albuginea: the irritation of its secretory portions is not always chronic; but if it become so, it tends to sarcocele; it may also participate in phlegmon of the cellular tissue of the scrotum. The inflammation of the vaginal tunic may be either acute or chronic, simple or complicated with that of the testicle, and with that of the scrotum.

The phlogosis of the inter-glandular cellular tissue of the prostate and lachrymal glands, exhibits the same phenomena as that of the free cellular tissue, with some slight differences, arising from the irritation in the former being most frequently moderate, and purulent collections forming there with more difficulty.

The irritations limited to the secretories and excretories, belong to the series of chronic inflammations.

3d. *Acute Inflammation considered in the Capillaries of the Muscular, Tendinous, Ligamentous, Cartilaginous, and Osseous Tissues.*

When the muscles appear to be inflamed, it is the phlegmasia of the cellular tissue which separates their fasciculi and decomposes their fleshy fibres: it would be otherwise difficult to understand the small abscesses of the muscles. When the tendons and ligaments are inflamed, the white fibres are separated, and the cellular tissue uniting them appears developed; it is this tissue that is the seat of the phlogosis. The free and surrounding cellular tissue partakes of it, and this tissue, in consequence of pervading the tendon, commonly propagates the phlogosis in it, except in cases of external violence.

We will be convinced of all this by examining the tendons and the aponeuroses of the members which have been affected with acute rheumatism and with gout; we will see the cellular tissue in the immediate vicinity of the tendon or ligament developed or filled with a lymphatic exudation, analogous to that produced by inflammation of the most sanguineous cellular tissues and of the serous membranes. Finally the cartilages and the bones equally show us a red tissue, of cellular structure, if we examine them whilst acutely inflamed.

4th. *Acute Inflammation considered in the Capillaries of the Membranous Tissues.*

In the capillaries of the membranes, acute inflammation exhibits different phenomena, from what it does in the thick and cellular tissues.

1st. The circulation is more readily performed in the former, even during the most intense irritation. The fluids are not accumulated so as to enlarge much the fasciculus in a circumscribed point, except in the skin, which is the thickest and most abundantly supplied with cellular tissue of the membranes, and moreover the cellular tissue uniting it to the contiguous parts is very active and extensible.

Phlegmonous inflammations are more rare in the other membranes, which tumefy almost equally through their whole extent, as far as the development of the cellular masses supporting their different vessels will permit. However, inflammation sometimes attacks the whole thickness of the hollow viscera, even producing abscesses in them. We observe this, though rarely, in the parietes of the stomach, colon, and bladder. In these cases, the inflammation is developed in the inter-membranous areolar tissue.

2d. Delitescence more readily takes place in the capillaries of the membranes.

3d. Gangrene does not commonly occur in them, probably in consequence of the humours not collecting in them in such large masses; extensive accumulations are rarely found in them, but they are met with in isolated points where they sometimes form an eschar, which causes a perforation. The mucous membranes sometimes become also much softened, or reduced to a species of black jelly, which is a true mortification. The skin being more cellular, appears more subject to gangrene than the other membranes.

4th. As soon as the irritation commences to decline, the ordinary secretion of the membrane, which was suspended, is re-established; but its product often differs much from the purulent matter of phlegmons. The mucous membranes are very subject to perpendicular ulcerations, which may also produce perforations.

5th. A collection of the product of inflammatory irritation is not always formed, a product which we consider to be confound-

ed with that of the altered secretion. The liquid is deposited on the membrane; sometimes part of it is resorbed, sometimes it accumulates there, and finally it is sometimes immediately eliminated. All this depends upon the disposition and habits of the part, and cannot be explained except in the special history of each phlegmasia.

When the inflammation is feeble instead of being acute, various changes occur in the irritated part and in its product, which require, in order to be understood, that we should have studied acute phlogosis in the capillary fasciculi of the white tissues.

5th. *Acute Inflammation considered in the Capillaries of the Lymphatic Glands in General.*

The inflammatory action sometimes becomes developed in the lymphatic glands with sufficient energy for gangrene to attack it, or a purulent collection may form in them; certain buboes, whether venereal or inflammatory, are evidences of this fact;* but in this case all the vigour of the phlegmasia should be attributed to the cellular tissue, which unites many glandular masses. When the irritation is limited to the tissue of the glands, it is not always chronic.

6th. *Acute Inflammation passing into the Chronic State in the different tissues.*

When the inflammatory irritation does not become extinct at its origin, constituting delitescence or resolution—or in its more advanced stage, transforming the part into a gangrenous eschar, this irritation becomes chronic.

Inflammation is rendered chronic by different causes, which I cannot here enumerate, but they all act by the same mechanism: it is always the continued action of a stimulus that prevents inflammation from abating. In fact, if the stimulus which gave the first impulsion to the inflammatory action be not renewed in the diseased part, or if some other be not substituted for it, this action, which can only have a determinate duration, will necessarily cease; if then irritation continue, we may be assured that a local stimulant exists, and it may

* Venereal buboes may be febrile; but we are here considering critical buboes, following phlegmasiæ of the viscera, called *fevers*.

almost always be perceived by the attentive physician; sometimes this stimulant is external, at others it arises from the disorganization produced by the inflammation. In fact, when the inflammatory action is perpetuated in a living tissue, it produces different disorders there which are subordinate to its degree and to the nature of the capillaries in which it has established its seat.

If it prevail with some degree of violence in a tissue abundantly provided with sanguine capillaries, chronic suppuration takes place, as in fistulous abscess—or chronic red induration, as in prolonged pneumoniæ. These two phenomena also occur in different degrees in the other organs, in whose cellular tissue inflammation may prevail. Active and continued irritation of the membranes also produces prolonged suppuration and red induration. All large wounds maintained by the presence of foreign bodies, splinters, necrosed bone, repeated contusions, and by exercise of the part, equally exhibit these two phenomena, which also keep up much of the acute state.

Moderate, and even feeble irritation, maintained during a long time in the tissues which contain sanguine capillaries, entirely altering them, now and then acts at the same time upon the white tissues.

Suppuration or prolonged exudation, and red thickening with induration, are the traces of chronic irritation of the sanguine capillaries. All callous ulcers, slow hepatizations of the lungs, and chronic red hardening of membranes which have been long stimulated, afford proofs of it.

We discover that the lymphatic capillaries have participated in the chronic irritation, by the lardaceous or caseous thickening—by the red and gray inorganic appearance which is called scirrhus—by the cerebriform degeneration—by that called *melanosis*, on account of its black colour, &c. Sanguine and lymphatic indurations frequently occur by the side of each other, or intermingled in the viscera and the most sanguine tissues, as in the lungs, in the liver, in the subcutaneous tissue and the skin, and even in membranes of all kinds.

When very slight irritation, has for a length of time occupied tissues rich in sanguine capillaries, especially in subjects neither very irritable nor plethoric, lymphatic indurations are sometimes

met with predominating in them; but if the irritation establish itself in a tissue in which lymphatic capillaries predominate, and if it be not extended to the sanguine capillaries by any cause, the lymphatic hardening is the only one that occurs, at least for some time.

Finally, to obtain a juster idea of the disorders usually left by chronic irritation in the slightly sanguine tissues, we proceed to examine it in the lymphatic glands, which present us with fasciculi of capillaries in which the albuminous matter predominates. We will afterwards investigate how it modifies the tissues in which the non-sanguine capillaries are less predominant.

7th. *Chronic Inflammation considered in the proper Capillaries of the Lymphatic Glands.*

The greater number of the lymphatic glands, without reference to the tissue that surrounds them, are formed by the union of numerous absorbent vessels, conveying white fluids. They also contain some sanguine vessels and nerves, but the white vessels predominate.

Nevertheless, when acute irritation is developed in them, they redden, and even phlegmonous suppuration takes place. But if the inflammation in them pass to the chronic state, the glands become grayish, whitish, and sometimes semi-transparent, and in this state some physicians give it the name of *crude tubercles.*

This tissue may continue a long time unchanged; delitescence and resolution take place in it with difficulty; but the irritation may increase in the mass already in part disorganized; and then instead of a super-animalized liquid, as the pus of phlegmon—or albumino-gelatinous, as the exudation of membranes—it produces a white, concrete, inodorous matter, presenting pretty exactly the appearance and consistence of cheese, and, more disposed to acidify than to putrefy.

The matter collects most frequently in the centre of the gland, and accumulates so that the latter seems to be surrounded by a species of rind only, apparently of the same nature as the scirrhous gland. Finally, a period arrives at which nothing remains having any resemblance to the gland, and a white

mass only is seen, surrounded by cellular tissue, sometimes even without apparent adhesion, and as if deposited immediately in the capillary fasciculi or in the areolar tissue of the part. Sometimes the matter collects in small isolated abscesses in the gland, which seems to be composed in part of glandular and in part of white granules; but the increase of these latter always terminates in the disappearance of the glandular tissue, which may be said to be converted into this white matter, usually called *tuberculous*. When the gland presents only a mass of this nature, it is termed *softened* or *digested tubercle*.

Whatever may be the origin and mode of formation of the tubercular matter, it is often observed softened at its centre and transformed into a fluid of the colour and consistence of cream, which becomes of sufficient tenuity to be detached from the consistent portion and expelled when the tubercle communicates with the exterior. It is probable also that it may be resorbed. In this manner the largest tubercles disappear, leaving in their place a cavity which is sometimes changed into an ulcer in the parenchymata.

Such is the regular progress of chronic glandular phlogosis; but sometimes the product of its irritation combines differently, and forms calcareous, osseous, and cartilaginous substances, &c.

Whilst the lymphatic glands are slowly altered and disorganized, the same irritation that denaturalizes them and which is ordinarily seated in the neighbouring mucous membrane, when it affects the viscera, extends very often through the whole surrounding cellular atmosphere, or in the whole parenchyma, developing there a multitude of small tubercular masses, which are probably the effect of the disorganization of the principal fasciculi of the lymphatic capillaries. This disorder sometimes proceeds to such an extent as to cause vast portions of cellular tissue or a whole viscus to be transformed into a scirrhous, white, or cheese-like mass.

Such are the effects of chronic irritation limited to the lymphatic capillaries, showing that these enormously developed capillaries, have compressed by degrees the other vessels and ultimately destroyed their activity and reduced them to an almost perfect inactivity.

This kind of alteration can take place in all parts, especially

in those destined for copious secretions, because lymphatics abound in them; it always supposes that the sanguine capillaries in these parts suffer but little irritation.

When the altered lymphatic glands are situated in a cellular and adipose tissue, whose sanguine capillaries are feeble, a peculiar kind of alteration, somewhat similar to that of the pure and simple lymphatic fasciculi takes place in this tissue. We now proceed to consider this kind of alteration.

8th. *Chronic Inflammation, considered in the Capillaries of the Cellular Tissue, and in the Organs in whose Tissue it may become developed.*

The cellular tissue does not always suppurate when it is the seat of a point of chronic irritation, as, after abscesses, and in lacerated wounds, and with abscesses penetrating between the muscles, &c. In these cases, as we have already observed, inflammation perpetuates itself in the sanguine capillaries. There are other cases in which it seems limited to the white capillaries, independent of the simultaneous affection of the glands, and of the lymphatic fasciculi; at least I have believed that this should be concluded, from the examination of this kind of alteration, which has received from the moderns the names of *lardaceous tissue, scirrhous tissue,* or medullary sarcoma, *(encephaloïde.)*

The lardaceous degeneration is that state of portions of our body which on being cut into presents a yellowish and compact aspect, like the rancid fat of pork. These tissues, as well as the two others, are hard and renitent; often no sanguine vessels are seen in them; if we dissect a great number, we become assured that this state depends upon the accumulation, in the meshes of the cellular net-work, of a concrete matter, whose colour and other attributes vary exceedingly: thus we find this concrete matter sometimes in the form of greasy, yellow lumps, at others it is white, at others resembling tallow; we meet with species of fibrous, albuminous, and cheese-like masses; with fluids of a honey or lymphatic consistence, and some tubercular glands, or small depots of tubercular matter of irregular form.

All these fluids are contained in a transparent, lamellar tissue, of the nature of serous membranes, or of cellular tissue; but it is not rare to meet also, in the disorganized mass, with thicker

tissues, and of a fibrous, ligamentous, or tendinous aspect, which give great consistence to the tumour.

These fibro-cartilaginous degenerations are peculiar to the cellular tissue; when they appear to invade the muscles, the ligaments, the cartilages, and the bones, it is by means of the cellular laminæ that enters into the proper tissue of the parts, and penetrates, as we have said, that red inflammation extends itself in them. I am led to this opinion by the following considerations:—

When the muscles, and the cellular parenchymata become lardaceous, &c. the cellular tissue, which insinuates itself in these parts, undergoes the same change, and the disease commences in it. In this case the sanguine vessels, and the proper tissue of the organ, are, as it were, choaked.—When on the contrary, the irritation of the red capillaries predominates, both the cellular and the proper tissue are sanguineous: the irritation commenced in the cellular tissue surrounding the organ; and the vessels, as well as the white fluids, become considerably lessened, or totally disappear. In the first case, all the capillaries have become white vessels; in the second, they all appear to have been transformed into red vessels.

9th. *Chronic Inflammation considered in the Tissues of the Membranes.*

If a feeble irritation persists for a long time, in the membranes, it produces divers alterations in them, according to the order of capillaries in which it is seated. Irritation may continue a long time in the red fasciculi of the skin, producing red thickening, and sometimes suppuration somewhat analogous to that of the cellular tissue. If it be seated in the excretories, its effects are sweats, scabby pustules, exudations, vesicles of a scabby, herpetic, or scurfy form, &c.; all which varieties depend upon the extreme susceptibility of the skin, upon the great number of excitants capable of modifying it, upon the complication of its structure, and upon the different stimulating qualities of the fluids which it secretes.

But if the irritation be fixed in the white and lymphatic fasciculi, the skin thickens, and becomes lardaceous, like the other tissues of which we have spoken. When the subcutaneous cellular tissue suffers this disorganization first, the skin often ultimately participates in it, resolving itself into cellular laminæ.

In the mucous membranes, chronic irritation produces red hardening; fungosities, which are a variety of the former; and alterations of the excreted fluid, which vary much less than that poured out by the skin. Lardaceous degeneration, scirrhus, and medullary sarcoma, are also met with, 1st. in places where the cellular tissue uniting the mucous membranes to the subjacent organ is extensible, that is, in the hollow organs, which often change their form on being dilated by certain bodies; 2d. in the points where these membranes are strengthened by a sanguine capillary net-work, very intimately united to the white vessels by means of cellular tissue: such are the cardia, the pylorus, the neck of the uterus, and the external opening of the mucous membranes in general.

The mucous membranes, most commonly, do not become changed into lardaceous tissue; but the latter, and all those termed scirrhus, and carcinoma, are almost always preceded by chronic inflammation of the mucous membrane, to which they are attached, and then the latter ordinarily exhibits ulcerations, that sometimes penetrate even into the degenerated mass. Moreover, when the mucous membrane is not ulcerated, it is at least phlogosed; a fact of the truth of which I am convinced. White indurations, which are, however, rarely simple, and appear to commence in the glands destined to supply the mucosity, sometimes are developed in the proper substance of these membranes.

The serous membranes, when chronically irritated, thicken and redden, exuding a matter which varies much when the irritation is truly inflammatory; but if it be feeble, obscure, and of very long continuance, the whole membrane appears transformed into a white tissue, resembling cartilage, or fibro-cartilage; and even sometimes exhibiting a lardaceous aspect, and tubercular and osseous depots more or less approximating to the free surface. In a great number of subjects, the red colour of the acute stage is changed into black through the whole extent of the peritoneum. This colour is due to the blood, and the cavity is sometimes deluged with a black serosity, and presents clots of black blood.

Sometimes the proper membrane is less disorganized than the subjacent tissue, which, by the engorgement of its cells, offers a very thick lardaceous bed. The laxer a tissue is, and the more readily it permits changes in the shape of the viscera, the more marked is the white disorganization after long-continued, feeble

irritations. It is also necessary to remark, that the more considerable the white and lardaceous disorganization is, the thicker, more cheese-like, and more approaching to tubercular matter is the exuded matter called pus. This is not the case if the degeneration of the serous membrane be cartilaginiform.

10th. *Ulceration in General.*

Hitherto I have said nothing of ulceration, because it is important to separate it distinctly from phlogosis properly so called. Every solution of continuity with an inflamed and suppurating surface, I consider an ulceration. Thus the lips of a recent wound, or the skin denuded of its epidermis, do not deserve the name of *ulcer*, until phlogosis and suppuration are perceived in them.

This term is commonly restricted to ill-conditioned suppurating surfaces, and to those in which there is a loss of substance; those which are red, furnish a good pus, and have a tendency to cicatrize, are called simple wounds. For my part, considering that the same wound may be healthy looking at one time, and red at others, black, livid, putrid, unequal, and even with loss of substance, I have determined to unite all the solutions of continuity, attended with phlogosis and suppuration, under the name of ulcers, as I have united all the irritations tending to disorganizations, under the general title of *inflammation.*

An ulcer is always consecutive to inflammation, and every inflammation produces its peculiar ulcer. We must then examine ulceration as we have examined phlogosis.

11th. *Ulcerations of the Cellular Tissues.*

Phlegmonous phlegmasia or that of thick tissues rich in sanguine capillaries, does not produce ulceration except by means of a purulent collection. When the abscess is emptied, the ruptured and inflamed cellular tissue containing it, and which then forms the parietes of the abscess, remains exposed to the air, and suppurates. Different foreign bodies come in contact with it, and hence one great modification produced in the inflammatory action of which it is the seat. The surface becomes red; swells; assumes a granular aspect; furnishes a creamy pus, having scarcely any odour; gradually contracts; suppurates less;

and forms over itself a cicatrix beneath which the tissue is condensed, adhering, incapable of gliding and of becoming accumulated with fat.

When the cellular tissue has been divided by any force whatever, if the parietes of the solution of continuity be not maintained in contact by surgical means, they are converted into an ulcer, that scarcely differs from the preceding, and like it having a tendency to a cure.

Such is the progress of simple cellular ulcer, stimulated to a proper degree. But how many causes are there capable of interrupting this favourable progress!

All bodies placed in contact with the wound, differently modify its inflammation; hence the infinite diversities in the pain, duration, aspect, and suppuration, according to the method of dressing, to the topical remedies applied to it, the foreign bodies remaining in the bottom of the wound, the disposition of the abscesses retaining the pus and giving it time to decompose under the influence of the air, to be reabsorbed, and to keep up hectic fever; hence, the influence of putrid and contagious miasms which alter the inflammatory action, and make dead predominate over living chemistry, in the fluids poured out on the ulcerated surface.

This species of irritation may continue for a long time without the ulcer taking on an alarming character; and if, at the epoch, when the irritating cause ceases to act, the forces are not exhausted, the cure is complete, and there remains no other local disorder, except the extenuation of the parts and their stiffness, the necessary effects of the destruction of the cellular tissue.

The scorbutic diathesis, which causes ulcers to become putrid and sanguinolent, depends not only on a local vice, but also upon a general disposition, which greatly favours the injurious influence of external bodies.

In all these cases, it is evident that the phlogosis has always been of a phlegmonous nature, or that it has prevailed principally in the red arterial capillaries.

But if at any period during its continuance, the white fasciculi participate in the irritation, tubercular or lardaceous engorgement forms in the parietes of the ulcers, and their surface no longer retains the same aspect. These changes in their progress are frequently observed in ulcers in scrofulous and venereal sub-

jects, when the disposition to these diseases is universal and considerable.

12th. *Ulcerations of the Parenchymata.*

All the organs with thick, red capillary fasciculi, and exposed in consequence of this disposition to sanguine phlogosis with considerable tumefaction, are less subject to purulent collections, and to the ulcers resulting from them, than the general cellular tissue.

In the lungs, the pus is excreted by the bronchial cells, as it is formed, rendering phlegmonous abscesses of this viscus extremely rare. The ulcerated cavities found in it, rather result from the progressive destruction of the parenchyma, altered by inflammation, and reduced to lymphatico-sanguine granulations, or from a softened tubercle. The alteration of analogous, but smaller fasciculi, situated in the thickness of their parietes, also gives to these ulcers the eroding character.

In the liver, spleen, and brain, and in the glands interspersed with cellular tissue, purulent collections readily occur; but this is not the case as regards ulcers. In general, ulcers are not observed in these organs, unless when the abscess has been evacuated externally, with some exceptions only, and when the air, or the gases of the alimentary passages can reach the abscess: then the case approximates to that of phlegmonous abscess which we have already examined, and what we have said of the latter is applicable to the former.

If irritation extends from the sanguine to the lymphatic capillaries, the phlegmonous ulcerations of the parenchymata become partly red, partly white, black, lardaceous or tubercular, according to the predominance of cellular tissue, or of glands. I have observed this disposition in the parietes of ulcerated abscesses, that I have met with in the substance of the liver and spleen; I have even attributed to it the ulceration in the cases in which the abscesses were inaccessible to the air; an opinion which the sequel of these considerations will render probable.

13th. *Ulceration of the Muscular, Tendinous, and Ligamentous Tissues.*

The compact tissues, the bones, ligaments, &c. do not ulcerate except by their exposure to the air, unless they be distended so as to admit of a purulent collection within their parietes. This mo-

dification is possible in the osseous tissue; it is commonly the effect of the lardaceous development; which does not permit us to doubt that ulceration may take place in this tissue.

14th. *Ulceration of the Membranes.*

The ulcerations of the membranes vary like the phlogoses to which they are subject. Those of the skin are almost innumerable; the most common is that succeeding to superficial sanguine phlogosis, as from vesicatories, from slight burns, and all excoriations; next is that implicating the whole thickness of the chorion. This is seen as the consequence of deep burns; and in a more circumscribed way after the acute stage of a boil and anthrax. When the loss of substance resulting from the fall of their eschar reaches beyond the derma, it is analogous to ulceration of phlegmonous abscess. The suppuration and red and granular aspect are the same, when the inflammation of ulcers of the skin affects exclusively the sanguine capillaries; but these wounds are subject to the same accidents as the phlegmonous, by the influence of external irritants.

If the irritation be seated in the mucous or sebaceous excretory fasciculi, the ulcer is pustular, scabby, sanious, serous, and accompanied with pruritus; such are the excoriations of psora, herpes, and tinea; if the lymphatics be the most irritated, the ulcer is tubercular, gummy, mucous, or callous, as is seen in superficial, venereal and scrofulous ulcers, in those that succeed to crusta lactea, and those of elephantiasis.

All these varieties occur separately and variously combined. Thus the red and active ulceration of a blister, and of a slight burn may appear gray and unequal; the white and unctuous pus which it furnishes become serous, yellow, or red; when the herpetic irritation is combined with the sanguine, the moderate pain is succeeded by an insupportable itching: and on the contrary, on irritating by friction or any other means the surface of the skin exposed by the destruction of a vesicle of psora or tetter by the detachment of a crust, small, white, scarcely visible ulcerations are transformed into large furuncles, and even into frightful, sanious, red, bleeding ulcers, because there is added to irritation of the excretory capillaries, that of the sanguine capillaries.

Mild small-pox, which attacks the excretory vessels only,

produces pustules which scarcely implicate the dermoid tissue; when it is confluent, and complicated with a more considerable phlogosis, it attacks the whole of the cutaneous tissue, and produces in it a loss of substance. The most isolated and benign variolous pustule, if greatly irritated, assumes the combined characters of the variolous pustule and furuncle.

Chronic irritation of the skin with hardening, sometimes overspread, in adult age, with a chancrous ulceration, is in my opinion, but a combination of white phlogosis with that of the excretories and that of the sanguine capillaries. The following are my reasons for venturing this assertion.

If a purely sanguine phlogosis be much irritated, its character is not changed without extreme difficulty, because another mode of inflammation is necessary, as we have seen might occur; that is, because it is necessary that the white vessels should participate in the irritation. But this change is announced by the development of a scirrhous tissue, in which the presence of albuminous fluids are visible.

On the other hand psoric, herpetic, porriginous and venereal ulcerations treated by emollients, do not become exasperated; and if they do not get well, which sometimes happens, they at least preserve their primitive character, and continue stationary. But if we obstinately irritate them, and their sanguine phlogosis be continually exasperated, there is no one of them that may not acquire the malignity of the most corroding chancre, much more readily than those of the preceding order, because lymphatic irritation already exists in them, and it is easier for sanguine than lymphatic inflammation to be developed by irritants. It is known also that slightly inflamed and not very painful venereal ulcers never make great progress, that the most formidable are such as unite sanguine phlogosis, with excessive sensibility, and that there is no better means of arresting them than a combination of emollients and narcotics.

It will be discovered, if earnest attention be devoted to the subject, that all cutaneous ulcers, characterized by extending themselves by eroding, arise from an irritation of white capillaries, either lymphatic or excretory, in the midst of which sanguine phlogosis developes itself; and in proportion as this last becomes exasperated, do the ulcers advance, and approximate themselves to true chancre.

It is not then unreasonable to attribute the chancrous ulcerations that arise without any known cause, in a portion of the skin or indurated mucous membrane, to the combination of these two phlogoses of which we have spoken. It remains for us to explain why, in certain cases, this ulceration does not yield except to the disorganization of the diseased part, whilst in others it is cured by emollients, or by certain remedies. It is thus that venereal chancres are sometimes advantageously modified by mercury. For myself, I think that these mixed phlegmasiæ become locally incurable, only in consequence of having been irritated, and generally from the repetition of the irritation in the viscera.

In proportion as the mucous membranes partake of the organization of the skin, are phlogoses and ulcerations of the former analogous with those of the latter. Hence we very often see eroding ulcers in places where the skin commences to be changed into mucous membrane; they are even more common there than elsewhere, because in these places, the membrane is thickened by an exceedingly active, sanguine capillary net-work, very closely interlaced with white vessels, and with cellular tissue: all the openings of the mucous membranes are also equally subject to lymphatic and to inflammatory diseases.

Further, in the cavity of the viscera, the mucous membranes may also be attacked with eroding ulcers, as we have already said; but I do not believe that superficial and ambulatory ulcerations, without loss of substance, are common in these membranes; they appear to me the effect of phlogosis of the excretory vessels of the skin, which, in the internal membrane of the hollow viscera, are replaced by mucous glands.

Sanguine and violent phlogosis of the mucous membranes, is susceptible of gangrenous eschars; but these eschars are ordinarily common to the other membranes, or rather they are confounded with that black jelly of which we have spoken in the article *Gangrene*. The corroding poisons produce both.

Acute phlogosis of a less sanguine character, and whose principal action exists in the cryptæ of the openings of the mucous membranes, sometimes produces a superficial ulceration called aphthæ, which does not deeply implicate the tissue of the membrane.

When slight irritation has persisted for a long time, in the tissue of the mucous membranes, the cryptæ appear to the medical

anatomist to be the part where the most marked engorgement exists. This is also the case with those in which the ulceration commences. It developes itself first by a white point, covered with a mucous coat, similar to aphthæ. If it persist, the gland is destroyed, and subsequently the whole thickness of the membrane. This ulceration, the edges of which are irregular, tumefied, hardened, and similar to scirrhus, developes beneath itself, scirrhous tissues and tubercles, whenever the subjacent tissue will admit of it. If the stimulation continue, this ulceration does not cease until it effects the total destruction of the membrane, and in this case it produces the death of the individual.* The chronic irritation, has, undoubtedly, disposed the different lymphatic fasciculi to disorganization.

Next follows ulceration of polypi, and of scirrhous tumefactions, occurring in mucous membranes, and sometimes resulting from the lardaceous development of the cellular tissue, that unites the different membranes of the hollow viscera. I refer this last to the paragraph on cellular cancer.

I have never seen serous membranes ulcerated, except in the scirrhous productions, which are sometimes developed in them. But this also relates to cellular cancer.

15th. *Ulceration of the Lymphatic Fasciculi and of the Secretory Glands.*

The species of suppuration in which the lymphatic fasciculi are reduced to a putrid mass, does not merit the name of ulceration; but in the scirrhous state preceding this alteration, the glands are liable to ulcerate, if the irritation in them be much augmented—because the sanguine phlogosis interrupts the regular progress of the lymphatic phlegmasia, which slowly terminates in the tuberculous state. I have seen this ulceration in the bronchial glands as a result of chronic catarrh; it is sometimes met with in venereal buboes, and scrofulous tumours; it makes its appearance in the mesenteric glands, in which it results from prolonged ulceration of the mucous membrane, as well as in the parietes of an ulcerated stomach, where it developes glands which had not previously appeared; it is equally possible, and much more common in the secretory glands. It is doubtless to a combination of

* These losses of substance, when not very extensive, are curable; cicatrices are even observed in the mucous membrane of the intestinal canal.

white, with red phlogosis, in such proportions that the latter is not too predominant, that it may be necessary to attribute venereal, scrofulous, and cancerous ulcerations of the tonsils, prostate, testicles, and mammary glands. But as all these ulcerations are the effect of chronic irritation of many tissues united, we cannot form a just idea of them until after having studied chronic ulceration of the cellular tissue.

16th. *Ulceration of Lardaceous Masses.*

Pure and simple cellular tissue, reduced to that lardaceous state already described, by a very slight, chronic irritation, appears to be little susceptible of further changes. When we dissect any members of the body which are almost entirely transformed into a lardaceous mass, we do not commonly discover ulceration there: if it take place, it commences in the skin. This is the case with all the superficial scirrhous tumours; so that for a long time I doubted whether ulceration could possibly occur any where except upon membranous surfaces.

But I have met with points of ulceration, and even large ulcers, in the midst of the adipose and lardaceous masses sometimes developed in the mediastinum, and in the cellular tissue of the mesentery and of the epiploon; I have seen muscles, still enclosed in their sheaths, transversely divided by them; I have met with a spleen separated into two parts in a sac filled with pus; since then I have discovered that ulcers might occur every where.

The ulcers observed in the midst of lardaceous tissue, present rugose, indurated parietes, mixed with a livid red, and a pale or grayish shade. The pus found in them is a serous, sanguinolent, flocculent liquid, or a species of matter resembling the detritus of some parts of the body, and exhaling a peculiar fœtid odour.

Let us now connect what we have said respecting ulceration.

The ulceration of acute and manifestly sanguine phlogosis has a tendency to terminate speedily; that of sanguine phlogosis combined with irritation of the white fasciculi, is obstinate and eroding in proportion to the degree of action of the red capillaries, that is, to the violence of the irritation, provided, however, that a gangrenous eschar does not result from it, which, on falling off, may restore the ulcerated surface to the condition of a simple wound.

Ulceration of lardaceous parts in which sanguine irritation appears most feeble, is rare, and makes little progress. Hence result these three propositions: 1st, that irritation of the sanguine capillaries alone does not produce eroding ulcers and cancers; 2d, that irritation of the white capillaries may give place to these affections; 3d, that the union of two irritations in the same tissue communicates to these ulcerations the highest degree of activity of which they are susceptible.

The facts we have detailed, and the relations between them we have exhibited, appear to me to have elucidated the etiology of the different eroding ulcerations. Thus we easily recognise in the eroding ulcers of the breast, which are most common, a combination of many species of irritation of white fasciculi, upon which the excitation of sanguine phlogosis also acts. These fasciculi are the proper lymphatics, the secretory vessels of the milk, the exhalents and absorbents of the cellular tissue, all of which have an activity greater than that ordinarily possessed by the other vessels of their order. To these are to be added the excretories and sebaceous vessels of the cutaneous tissue, in which ulceration ordinarily commences.

All these fasciculi are mingled with red capillaries of different degrees of activity; as those of the skin, nipples, and the lacteal glands. Is it then difficult to conceive that the progress of cancer of the breast can be so rapid?

On the other hand, does not this great activity and vitality of the white fasciculi of the mammæ, explain how engorgement in this organ so readily extends to a distance, and so frequently renders extirpation futile.

Is it not equally evident, that if eroding ulcers limited to the skin be much more easily cured, it is because we may remove by amputation or caustic, all the parts that participate in the engorgement, the progress of which is always slow and difficult in a tissue as dense as the derma?

We will not push our conclusions further. It will be seen in the sequel, how the treatment may gain by this manner of considering irritation in the different parts of the body.

III.—INFLUENCE OF INFLAMMATION UPON THE FUNCTIONS IN GENERAL.

Hitherto we have examined inflammation only in the place that is attacked by it, but it is necessary, in order to form a complete picture of it, to present an account of the influence which it exercises over the functions in general.

We proceed then to this investigation, by following phlogosis from its greatest degree of intensity to its most feeble.

1st. *Influence of Phlegmonous Inflammation, and its Consequences.*

When a large fasciculus of sanguine capillaries is in a state of inflammation, there is acceleration of the circulation, augmentation of the heat, alteration of all the secretory organic actions, and of nutrition, which last is suspended to a certain extent.

The pain of the phlogosed part appears to be the cause of all these changes; it provokes the morbific oscillation, and attracts the fluids towards the irritated spot. It excites the sympathetic derangements of the heart and capillaries of different organs, from which the fever and the derangement of the secretions result.

Nevertheless all the derangements accompanying phlegmonous inflammation do not seem to be always in direct proportion to the pain. To prevent the false consequences which might be drawn from this fact, it is necessary to consider the effects of the pain in the following manner.

The general causes of inflammation reduce themselves, in our view, to two, viz. *a stimulation proceeding from the exterior*, and *a stimulation proceeding from the interior*. The mechanism of the first teaches us to explain that of the second, and this study conducts us to the etiology of inflammation in general.

External stimulation.—Physiologists have for a long time known that phlogosis might be excited, in any part whatever, by obstinately irritating it. We shall see in the course of this work many phlegmasiæ produced in this manner.

In all these cases it may be remarked that the pain precedes the phlogosis; but it is equally observed that the latter varies according to the structure of the part. If a thick and sanguineous

part be irritated, a phlegmasia is produced; if a white and dense tissue be acted upon, an engorgement only is provoked; if a nervous tissue be stimulated, violent pains are induced, without tumefaction and almost without phlogosis.

The difference that is observed between one tissue and another, is here discovered in the same tissue, though in a less considerable degree. The most sanguineous persons are not always those who are most predisposed to phlegmon, though they may be more subject to it than those who have scarcely any visible sanguine capillaries, and who have a very dull sensibility.

Those of athletic temperaments, and who are neither very sanguine nor sensitive, still more easily escape phlegmasiæ. Those who are exceedingly nervous and not very sanguine, may be for a long time tormented by pain without inflammation resulting therefrom.

The most obnoxious to phlogosis are those of sanguine and nervous temperaments, namely, those in whom the animal and organic sensibility, that is, the irritability, are simultaneously greatly developed, and who have in addition some degree of hypertrophy of the heart. They are in general recognised by the activity of their pulse, the heat of their extremities, and the difficulty which is experienced in staunching the hæmorrhage from their slight wounds: they are subject to violent transports of passion; finally, experience teaches that the slightest irritation developes in them small inflammatory tumours.

This species of susceptibility is not incompatible with strength, but it is sometimes found united with feebleness: it corresponds to a great development of the sensibility of the system of relation, but this does not suffice to constitute it. Habitual vivacity of the circulatory movement, which announces exuberant activity of the heart, is necessary to it, since it is on account of this activity that stimulants act more particularly upon the circulatory apparatus.

The facility then, with which the irritation of external bodies will excite phlogosis, will be in proportion to the degree in which this irritation is felt by the sanguine capillaries.

This proposition appears to me demonstrated.

Pure and simple organic irritability, exasperated in a fasciculus of inflamed sanguine capillaries, may call into play the sympathies and develope the general inflammatory apparatus of which we have spoken. I will quote some examples of sanguine, febrile,

disorganizing and even fatal inflammations, which were unattended with pain in the phlogosed part.

M. Hébreard, second surgeon to the *Maison Royale de Bicêtre*, saw this occurrence in the most unequivocal manner, in an arm which had been for a long time deprived of its sensibility. A phlegmon was developed in it accompanied with heat and redness, without the slightest painful sensation.*

But all these tacit inflammations never acquire the degree of energy of which those are susceptible that are exasperated by pain; the sympathetic derangements, and especially the fever, are much less considerable in them; the local alterations which are analogous to phlegmon, occur here with more difficulty. The inflammatory tumour observed by M. Hébreard did not arrive at suppuration, but insensibly disappeared, as if the inflammatory effort had aborted.

It may then be admitted that the organic irritability is in direct proportion to the animal sensibility. It is also known, since the effect of all irritants proves it, that every thing that exalts one, equally excites the other. Bichat, who has taken so much pains to divide the sensibility, could not help confessing that the organic, by increasing, might be converted into animal sensibility, and afterwards return to its first state, and *vice versâ*.

All the differences that are made known to us by the general faculty of feeling, are then only differences of degree and of seat; and to apply this to inflammation in general, we see that it is the sensibility of the arterial capillaries to the action of stimulants, that is, their irritability, which favours phlogosis; and that this sensibility is always more active when the impression is propagated to the sensorium, than when it is limited to local phenomena.

Pain is then the most powerful exciting cause of phlegmasiæ. It may, therefore, with perfect accuracy be said that the sympathetic derangements, as well as the local disorders, result directly from the pain. Let us proceed to the second general cause of inflammation.

Internal stimulation.—We have first examined external stimulants, as the most evident, and the most proper for conducting us to the theory of internal stimulants. These latter may be as material as the former; for example, the bile, suddenly depraved

* See the *Bulletin de la Société Médicale d'Emulation*, Novembre, 1807.

by alteration of the secretory action of the liver, and poured in great abundance into the digestive canal, may occasion an inflammatory cholera; but most frequently the stimulation from an internal cause exhibits only an apparently spontaneous aberration of the organic actions. If, however, earnest attention be paid to them, it is quickly perceived that most of the concentrations which give rise to phlegmasiæ seem to be, and are in fact, an excessive action of the principal secretory organs of the economy. Pectoral phlegmasiæ occur when the lungs are compelled, to make up for the deficiency of the skin, to secrete more than they ought to do; most of the other inflammations from an internal cause, are produced by an increase of action excited in a nearly analogous manner. We cannot mistake this mechanism in the sympathetic influence of one inflamed organ upon another, which in its turn contracts the same state of phlegmasiæ.

Whatever may be the first cause of these vicious augmentations of secretory or other action, such as sympathetic influence, external violence, excessive contraction of the muscles, &c. which degenerate into phlogosis, no one can then fail to recognise the gradual augmentation of the organic susceptibility, and its passage to the state of animal sensibility. But this transition is always painful to the economy. First it developes a sensation of uneasiness, and calls into play the sympathies, which always supposes that the brain influences and is influenced, and this is invariably the case with the digestive apparatus. In a higher degree of irritation, this irritability always destroys the harmony of the functions by producing pain; its influence is sometimes so powerful that it prevents the general irradiation of the forces, and suspends forever the exercise of the vital faculties. I have seen many patients expire in a horrible uneasiness during the violence of extensive inflammations, without their complaining of any fixed and permanent pain. Is this death less the effect of pain?

Thus, the organic susceptibility may be very greatly exalted, without becoming truly painful. Pain, then, presides over the formation of all inflammations. Let us now see what effects the terminations and sequelæ of phlegmons may exercise over the ensemble of the functions.

Phlegmon, in terminating by resolution, ceases to be painful and quickly to exist. It cannot, then, produce sympathetic phenomena; if it be prolonged in an obscure degree, by producing

red induration of the organ, it can keep up a very weak febrile action only; but if it be seated in one of the viscera essential to life, and especially the lungs, it produces a considerable morbid influence upon the secretions, and causes dropsy, though it may be scarcely at all painful.

If it produce an abscess, if this abscess be completely empty, and if there no longer exist any local cause of pain and of phlogosis, the general harmony can no longer be disturbed; but if the abscess be not open, or if, although it be open, there exist deep abscesses and burrows in which the pus remains, there is a continuance of the pain and inflammation, and hectic fever.

When this fever arises from a collection of purulent matter, whose existence is only suspected, under the aponeurosis of a member, or in a part, the distention of which distresses the principal viscera; this fever is of a moderate intensity, and attended with obscure chills. I regard it then as a simple effect of the pain, (that is, of the sympathies which it developes,) although part of the pus may be resorbed. Are not considerable purulent collections frequently seen, which, although a portion of the pus penetrates into the circulation, do not produce hectic fever, provided the abscess does not distress any organ possessed of great sensibility, and much influence over the economy? I call this also *hectic fever from pain.*

When the hectic fever persists, or revives after the phlegmonous abscess, I term it *hectic fever from resorption.* In fact, it is due to the resorption of pus altered and decomposed by the air, as much as to the pain excited in the phlogosed tissue by the pus, by the air, and by other foreign bodies. But the pus, as well as the pain, can only produce it by transmitting the irritation to the heart, and almost always at the same time to the gastric mucous membrane and the brain, which commonly partake of its irritation.* All burrowing abscesses, all gun-shot wounds with depots, containing pus, or foreign bodies, and all suppurating phthises, range themselves in this category.

This species of hectic is the most consumptive, and the most rapid in its progress of all others, as we shall have too many occasions to be convinced of in the course of this work.

The protracted suppurations in which the pus can foment a

* We now prove that the brain is the medium of the sympathies.

slight hectic fever only, either because it is not resorbed, or because the subject is not very irritable, which commonly proceed in concert, prostrate the patient, and thus expose him to dropsy.

Such are the different ways in which inflammation of the thick, sensible, and mobile fasciculi of sanguine capillaries may influence the harmony and the regular succession of the functions. It is evident that I comprehend here all the irritations that are seated in the cellular tissue which insinuates itself in the principal secretory organs.

2d. *Influence of the Inflammation of the Muscular, Tendinous, Ligamentous, and Osseous Tissues, upon the Functions.*

The influence of the muscular tissue, is similar to that of the cellular, because the former acts solely by means of the latter. The tendinous and ligamentous tissues, which are in fact only denser cellular laminæ than those of the adipose net-work, when they are in a state of acute inflammation, very actively influence all the functions. I have not the least doubt that the febrile action, the sweat, the augmentation of the sebaceous excretion of the face, and of the mucous excretion of the gastric passages, which are almost always observed during the course of acute rheumatism, are the sympathetic effect of the species of pain that is peculiar to the tissues of which we are speaking. Moreover, we no longer find these sympathetic lesions so soon as the rheumatism has assumed its chronic character.

The periosteum and the bones cannot occasion fever and alterations of the secretions except in proportion as their irritation approximates to the intensity of phlegmon, and, as the cellulosovascular net-work is developed in them, and colours them in a very marked manner: these species of sympathies are always called into action by pain.

It is also by the pain that the *spina ventosa* and other chronic diseases of the osseous system disturb the sleep, cause neuralgiæ, convulsions, and marasmus.

3d. *Influence of Inflammation of the Membranous Tissues upon the Functions.*

Certain membranous tissues, in their highest degree of phlogosis, influence the circulation and the secretions in the same manner as phlegmon; and in proportion to the thickness of the inflamed fasciculi, and to the extensibility of the membrane, is the exactness of the resemblance. The cutaneous phlegmasiæ, are of all the membranous phlogoses, those which give to the pulse the greatest hardness, and to the heat the greatest intensity; and it may always be observed that the pain and swelling in them are proportionate to the fever and heat. This is remarked in erysipelas, anthrax, variola, scarlatina, and rubeola, although the concomitant inflammation of the mucous membranes necessarily adds to the intensity of the febrile action.

The cutaneous phlegmasiæ are rather chronic than febrile in their character, unless the pain has awakened the latter, as is seen in many cases of scabies or herpes, where the excess of pruritus causes agitation, insomnia, fever, and even marasmus. (See my work on *Hectic Fever.)* The resorption of a fœtid pus can contribute thereto only when the skin is covered with eroding ulcers: the fetidness of the excretions, and a more marked progress of marasmus, sufficiently distinguish this hectic from all the others.

All the phlegmasiæ of the mucous membranes may be very febrile, especially in the tissue of the lungs, although the pain in it be rarely sharp or acute. In the digestive organs the pain has sometimes a character of fixedness and depth which is peculiar to it, and by which the forces are subdued. The lesions of the secretions and those of the sensitive and locomotive apparatus are, however, then considerable. Nutrition is entirely suspended; the pulse, although accelerated, is neither large nor strong.

These phlegmasiæ, when they have become chronic, are almost indolent, and always unattended with resorption of pus, unless there is a complication: they are also often unattended with fever. The emaciation, which is sometimes observed in them, arises from deficiency of nutrition, rather than from an accelerated decomposition as in phthisis pulmonalis. Dropsy, which very often follows them, appears to occur when they exhaust without causing

much pain or fever. Ulcer and chancre of these membranes, if they then supervene, influence all the symptoms which they aggravate; but ordinarily the pain corresponds to it.

The phlegmasiæ of the serous membranes are more frequently painful and febrile in their commencement than those of the mucous membranes; it is necessary also to remark that although infinitely thinner, the serous membranes are more expansible, and more susceptible of sanguine tumefaction from the effect of violent phlogosis, than the most coloured of the mucous membranes. They have, besides, in many places beneath them, a cellular tissue which, if it participates in the irritation, tends to unplait it, and to reduce it to cellular tissue.

When chronic, the phlogosis of the serous tissues is still less painful and less febrile than that of the mucous membranes; when the irritation in it is very feeble, there is no longer any external sign of its existence, except the accumulation of the product of the phlogosis. This product, if it be resorbed, does not cause the hectic from resorption of which I have spoken, although it often has the characters of the most perfect phlegmonous pus, unless it have some communication with the air; for then its putrefaction is inevitable, and the symptoms resulting from it are, in all respects, analogous to those of the hectic from putrid phlegmonous abscesses, and suppurating phthises.

The serous membranes often become phlogosed from a species of *sympathy of similitude:* perhaps we should ascribe to an analogous influence, those general dropsies, which a long time before we can attribute them to exhaustion, sometimes complicate peritonitis. Ulceration is rarely to be dreaded in the serous membranes, except from a lardaceous development. We now proceed to the effects of irritation of the fasciculi, consecrated entirely to the white fluids.

4th. *Influence of Inflammation of the Lymphatic Fasciculi and of all the white Tumefactions upon the Functions.*

The irritation of the glands and of the lymphatic fasciculi which produces their tumefaction, is sometimes very painful, especially when the cellular tissues participate in it, to excite fever, and other sympathetic derangements; these phenomena disappear in the chronic state, which is called induration; but they may return when these tumours become excited, and

inflamed a second time, and pass into the state called *cancerous:* then general derangements are produced by the same mechanism as those of chronic phlegmon or ulcer. Is it not thus that febrile irritation is kept up in cancerous mammæ, &c.?

When the chronic primitive irritation, fixed in the cellular tissues, has been sufficiently feeble to interest the exhalents and absorbents alone, and has produced lardaceous engorgement only, the functions are but slightly deranged, unless the tumefaction becomes very great. Such are those enormous lipomata of the mediastinum, and of the interperitoneal tissue which compress and disorganize the viscera.

In this case, and in that where the indolent engorgement slowly invades the parenchyma of an organ essential to life, three results are possible: 1st, tardy phlogosis, from the effect of pressure or of other irritating causes; 2d, marasmus without phlogosis, from alteration of the forces of assimilation; 3d, dropsy, from sympathetic repetition, from debility, and from obstruction to the circulation.

The cancerous ulcer which is developed in the midst of lardaceous masses, furnishes for resorption a pus, whose abundance and putridity is in proportion to the activity of the arterial capillaries in the parietes and circumference of the lardaceous mass, that is, in proportion to the activity of the inflammation. Hectic fever is also violent in cancers in which this order of vessels predominate, as in that of the breast. It is at the same time a hectic from *pain* and from *resorption.*

If the ulcer be situated on a lardaceous mass, if it be enclosed in the substance of a tumour of the same nature, or in a membrane without any opening, it with difficulty becomes as phlogistic, and its pus as sanious and as deleterious as when it occupies a surface in communication with the atmosphere. This difference arises as much from the air not contributing to the putrefaction of pus, as from the want of predominance of sanguine capillaries in the cavity of the ulcer.

SUMMARY OF THE GENERALITIES OF INFLAMMATION.

1st. *Definition.*

All local exaltation of organic actions, sufficiently considerable to derange the harmony of the functions, and to disorganize the

tissue in which it is seated, must be considered as an inflammation.

2d. *Differences.*

Inflammation presents a multitude of varieties corresponding to the nature of the capillary fasciculi in which it is seated, and to its degree. Thus *(A) in the thick or very extended, and very energetic sanguine capillary fasciculi*, it presents pain, tumefaction, redness, and heat.—*In the progress of the disease*, resolution, gangrene, red induration, suppuration, abscess, simple ulcer, and cure without any other disorganization except condensation and destruction of the cellular tissue. *In its protraction in a moderate degree of activity*, the same phenomena, and in addition a development of lymphatic fasciculi, which no longer permit a cure to take place without disorganization.

(B.) In less active and thinner fasciculi of sanguine capillaries, tumefaction and redness; but sometimes heat and pain are absent.—*In the progress*, which is always slower, resolution; gangrene; red induration, often interspersed with degenerated lymphatic fasciculi; suppuration by exudation; and sometimes eroding ulcer, from a mixture of white induration.

(C.) In fasciculi of white capillaries, the phlegmonous form may occur, especially in the conglobate glands, but rarely. Most frequently tumefaction solely is constant, redness is absent, pain sometimes occurs, and heat never exists.—*In the progress*, in glands, resolution, induration, white and tubercular suppuration; in cellular tissues, lardaceous induration; in all, incurable eroding ulcers, unless the indurated parts are destroyed.

3d. *Influence upon the Functions.*

The influence of inflammation upon the performance of the functions, is always proportionate to its degree. Thus *(A) in acute sanguine phlogoses of the phlegmonous character, or occupying a great extent in a membrane of one of the viscera*, there is observed fever, uneasiness, profound alteration of the nervous functions, derangement of the secretions; and *in the progress of the disease and its continuance into the chronic state, with suppuration, ulceration, &c.* very active hectic fever, consumption, marasmus.

(B.) In sanguine phlogoses of organs scantily furnished

with red capillaries, or of *very circumscribed extent in membranes*, less acute fever, often very considerable nervous derangement, correspondent derangement in the secretions; but all these occurrences are not constant, and often, some of them appear only in a very slight degree. *In the progress and in the chronic state with suppuration, ulcer, &c.* slight hectic fever, often scarcely perceptible, slow consumption, difficult marasmus, unless the phlogosis is seated in the organ which presides over assimilation: in this case the emaciation is prompt, considerable, and not dependent upon the fever: dropsy may occur, especially if the hectic is slight.

(C.) In the lymphatic phlogoses, or simple irritation of the white capillary fasciculi, no fever, no sympathetic derangements, unless there is a complication with preceding irritations. *In its very long duration and ulceration, &c.* if the irritation of the white fasciculi be pure and simple, alteration of nutrition, derangement of the serous and lymphatic secretions, dropsy; if the ulcer be excited by combination with sanguine phlogosis, the most violent hectic, and very considerable marasmus.

Such are the conclusions which I was first led to adopt respecting the grand phenomenon of inflammation, by an immense number of attentively observed facts, by prolonged meditations, and frequently reiterated discussions with physicians of distinguished merit. But since the appearance of the first edition of this work, the diseases of which it treats have been arranged with other pathological conditions, as may be seen in the *Examination of Medical Doctrines.*

It is our business here to proceed to the exposition of the facts that have served as the basis of the *physiological medicine.* There will be found in this, all those contained in the preceding editions, and some others which I have thought ought to be added to it, to render the picture of chronic phlegmasiæ of the principal viscera more complete. The other inflammations will very often appear as a complication, and I will endeavour to reap some advantage from it to present as extended a picture of inflammatory diseases as is possible in this work, without destroying its interest. Moreover, a sufficient number of facts will always be given to represent the great majority of chronic affections, and although principally derived from the practice of military hospitals, it will equally embrace the diseases of all classes of society,

since there is no one whose chest and abdomen are not exposed to a thousand destructive agents.

In fact, the organs contained in these cavities, although placed in the interior of our body, are incessantly exposed to all the mechanical or chemical agents which surround us; their most intimate tissue is the constant term of all the painful oscillations of the passions, as Bichat has clearly demonstrated; an infinity of circumstances very often prevent the first morbid impressions made upon them being remedied.

Is it then astonishing that the greater number of those who die in the midst of their career should be victims to a phlegmasiæ? and since the perturbating agents to which they owe their phlegmasiæ, have during a long time been consuming their forces and depraving their sensibility, should we be surprised that their organs sometimes become impaired without giving any marked evidence of suffering, or that they should express it only in an obscure and equivocal manner, and that these inflammations should be chronic or latent?

As it is our object in this work to determine accurately the nature of diseases, for the most part chronic, which I have collected, and to prove that they are the effect of phlogosis of the viscera, I have founded the characters upon cases terminating fatally and elucidated by post mortem examinations. The first part of the picture of each phlegmasia is then a *catalogue raisonnée* of pathological anatomy. From this I have wished to extract the truths that compose my general history, which should not contain any thing hypothetical.

It remained for me to derive from these facts more important and useful advantages to mankind, in applying them to therapeutics. I endeavoured to attain this object by reporting a certain number of cases terminating in a cure, the nearest allied in their symptoms to those which serve as a foundation for the characters of the disease. I compare them with the former, and investigate them as far as is necessary to demonstrate their analogy. I afterwards attempt to fix attention to the effect of medicaments, and to the details of their administration. Finally, my work is terminated by a very concise summary of all that has been said upon the phlegmasia.

Faithful to the method I have adopted of proceeding from the more evident to the more obscure, I shall commence with the phlegmasiæ of the lungs.

SECTION FIRST.

OF PULMONARY INFLAMMATIONS IN GENERAL.

All that we have said of inflammation in general, is applicable to that of the lungs. In this organ, inflammation is always an irritation seated in a larger or smaller fasciculus of capillary vessels, which have invited the fluids to them, and thus tend to change their chemical composition; but the result of this local effort differs according to the predisposition or temperament, and according to the nature of the capillaries in which the inflammatory action first arose. As this difference is the most essential, it will be assumed as the foundation of the distinctions we are obliged to establish, and we shall admit as many species of pulmonary inflammations as there are capillary fasciculi in the lungs, in which the inflammation pursues a different march.

All practitioners agree in distinguishing three species of pulmonary inflammations; 1st. Inflammations of the mucous membrane; 2d. Inflammations of the parenchyma; 3d. Inflammations of the serous membrane, or the pleura. The first are termed *catarrhs;* the second *pneumoniæ;* or, more generally, *peripneumoniæ;* the third are known under the name of *pleurisies.*

There is an inflammation accompanied with ulceration which tends to destroy the lungs, and consequently induces marasmus and death. This is termed *phthisis;* I consider it as chronic phlegmasia of the parenchyma.

Catarrh, pneumonia, and pleurisy present themselves in a multitude of forms, from the most acute to the most chronic. In the former, they are accompanied with heat, pain, swelling, and redness; they induce fever, and very violent sympathetic derangements; and if death supervenes, morbid changes are discoverable in the fasciculi of the sanguine capillaries. We shall, therefore, designate these three phlegmasia by the general title of *sanguine inflammations.*

In losing the acute character, and in persisting for some time,

these phlegmasiæ lose some of their first symptoms, and acquire others, by which they approach the consumptive phlogosis, and even appear in many cases to induce it. In following the sanguine phlegmasiæ through their different degrees of chronicity, we shall have traced the history of phthisis. Phthisis, or that species of phlogosis which ulcerates and erodes the parenchyma of the lungs, often presents itself with symptoms of catarrh, peripneumony, and pleurisy; hence it is advantageous before entering on its consideration, to have previously studied these diseases. Besides the phlogosis of the sanguine capillaries, which appertains equally to these three phlegmasiæ, phthisis sometimes exhibits an alteration of the lymphatic fasciculi of the lungs. This alteration results from their long-continued irritation, and even from that of the sanguine capillaries; consequently, it is produced and kept up in the same manner as all the other phlegmasiæ; we are, therefore, entitled to give pulmonary phthisis the name of *chronic pneumonia.**

Nevertheless, bearing in mind the lymphatic alterations which usually complicate these pneumoniæ, we shall establish, merely for the purpose of coordinating the facts which are contained in this work, two great divisions of pulmonary inflammations, viz. 1st. Sanguine inflammations; 2d. Lymphatic inflammations, which are still called *tubercular;* without pretending that every chronic pneumonia must be necessarily accompanied with tubercles.

ARTICLE FIRST.

SANGUINE INFLAMMATION OF THE LUNGS.

This is subdivided into *catarrh*, *peripneumony*, and *pleurisy*. These three phlegmasiæ are usually treated of separately. If I only intended to examine them in their acute state, and to abandon them, as is usually done, the moment they become obscure, either by their duration, or from becoming complicated

* See the discussions in justification of this title in the "*Examination of Medical Doctrines.*" The facts contained in the "*History of Inflammations*" are the original basis on which it was founded, but this theory has been more fully developed in the work above cited.

with other affections, I should have conformed to this plan, but as my aim is to draw the attention of practitioners to all forms of the chronic state of these phlegmasiæ, and, as in their progress, catarrh and pneumonia become blended, I have thought it better to unite these two affections in the same chapter, and to treat separately of pleurisy, which differs from them very essentially.

CHAPTER I.

Catarrh and Peripneumony.

The line of demarcation between catarrh and peripneumony is very difficult to trace, as every violent catarrh terminates in peripneumony. Nevertheless, if I might establish a difference, I would derive it from the original seat of the inflammation. When a person is seized with a chill, followed by a dull and deep-seated pain in the side, with dyspnœa, cough, mucous and bloody expectoration, and a violent fever with a large and full pulse makes its appearance, there can be no doubt,* that the red capillaries distributed in the parenchyma, either for nutrition or for the oxigenation of the blood, and in the tissue which unites the different vessels of this parenchyma, are the seat of the irritation. It is, therefore, certain that peripneumony is from its very commencement, an inflammation of all the sanguine capillaries of the respiratory organ.

When, in consequence of cold, a slight uneasiness is felt in the larynx and breast, with a painful constriction, and at the same time there is a sensation of fulness and stoppage in the mucous membrane of the nasal fossæ, a disposition to a flow of tears, no pain, except from the effort of coughing, when also there is no excitement in the pulse, all physiologists agree that the principal irritation exists in the organs which furnish the secretion of mucus.

If, two or three days afterwards, and from particular circumstances, the pulse rises, the heat augments, and the circulation

* The death prevents our entertaining this doubt, as it permits us to observe a development, and an extraordinary sanguineous injection in all the tissues which compose the respiratory organ.

becomes more rapid, we may be assured that the irritation is no longer confined to the mucous glands, and that it has extended to the whole membrane and in the capillaries of the tissue which unites the air cells to the vessels, &c.; there is now a consecutive peripneumony. This does not always attain the same violence as if it were primitive, the inflammatory irritation being apt to remain in the capillary system in which it commenced; and when this system is so constituted as not to experience this phenomenon in a high degree, the inflammation rarely becomes as violent as when it originates in the more sanguine capillaries. Let us recur to facts which establish this truth.

Certain very robust and plethoric individuals are exposed to catarrhs, and the moment that the disease has commenced in this form, it will be perceived that it seldom attains the intensity of a peripneumony. Under other circumstances the same individuals may be attacked by a violent peripneumony, the course of which will have no resemblance to their habitual catarrhs. Many patients affected with peripneumony, have declared to me, that they had often retained and exasperated their catarrhs without ever experiencing their present symptoms.

Certain modifications of the atmosphere specially affect the muco-glandular system; in such cases catarrhs rarely become peripneumonies; others develope a peripneumony, which, being well marked from its commencement, can never be mistaken for a catarrh.

When gout, rheumatism, the menses, a hæmorrhage, a phlegmon, or any other disease consisting in an exaltation of the sanguineous system, are repelled and replaced by an inflammation of the breast, this last rarely commences under the form of a catarrh; it is almost always, from its first appearance, a peripneumony or a pleurisy of greater or less intensity.

Dissection does not throw as much light on this question as is desirable, a mortal catarrh almost always becoming complicated with pneumonia in the progress of the inflammation. Nevertheless, it may be remarked, that acute laryngeal and tracheal angina may occasion death without affecting the parenchyma; but this is by preventing the passage of air. When they become chronic, the inflammation always is propagated to the parenchyma, if some other phlegmasia does not cut off the patient.

If the catarrh, in disorganizing the mucous membrane, does

not communicate an irritation to the capillaries of the parenchyma, which are solely appropriated to the oxigenation of the blood, and to the cellular tissue, the lung will not become indurated, and the catarrh may, even in the dead body, be distinguished from peripneumonia. However, there can be no doubt that peripneumony and catarrh are each developed in a different order of capillaries; but it is evident that to vaguely indicate the mucous membrane as the seat of catarrh, is not enough. Peripneumony may equally originate in that membrane. In fact, what is the use of this membrane in the bronchial cells? Like the gills of fish, it receives the subdivisions of the pulmonary artery, for the purpose of exposing the blood to the action of the air, and these vessels are then found in a more capillary form than in any other part which they traverse. But, it is always in the capillaries that the inflammation commences. It is then in the mucous membrane itself that the inflammatory action of peripneumony originates. As the fasciculus in which it is developed is very large and subjected to the same vital laws, almost all the radicles of the artery of the affected side are seized with it at the same time; and hence the extremely sudden intensity of peripneumonic inflammation.

In catarrh, the mucous glands are equally and similarly affected; but what a difference! They form a much less considerable mass, their capillaries are smaller and carry much less red blood, some of them being solely appropriated to the white fluids. In addition to this, as their vital properties and action are of a minor character, the reason is very evident, why catarrh is less rapid in its progress than peripneumony.

The difference in the seat of these two diseases being established, we are obliged to admit that catarrh too often terminates in peripneumony, and that peripneumony does not retrograde towards catarrh. It will hereafter be shown that these inflammations may become complicated with two others, namely, pleurisy and phthisis, but we will at present trace the former into their chronic state.

When the constriction of the arterial capillaries becomes relaxed in peripneumony, their extremities dilate and pour out a gelatino-albuminous fluid into the bronchiæ, which is immediately expectorated. Another portion of the same fluid, taken up by the venous radicles and the absorbents, is carried into the aortic

arteries, whose capillaries expel it in the perspiration and urine. It may also be remarked that the fluids are changed, being more mucous than usual under similar circumstances. This in the urine, the ancients called *hypostasis*. Resolution is now accomplished, and if complete, there will be no chronic stage.

If the inflammatory effort cease at its height, the capillaries of the pulmonary artery remain distended and gorged with blood, which is equally diffused through the inter-lobular tissue, and in the bronchial cells; the termination is now by *induration* or *hepatization*.

If this take place in all, or in almost all the capillaries of one or both lobes at the same time, death occurs in a sudden and violent manner; the patient expires from suffocation. This is the usual termination of peripneumonies which are fatal in the acute stage.

But if the induration be only partially effected, if, commencing in one or more points of no great magnitude, it gradually extends—death approaches slowly, and strikes his victim when the patient and his friends least anticipate the blow.

What are the symptoms that indicate such a termination? Are there any means to remove the induration? From what symptoms are we to draw a favourable prognosis? What are those which indicate inevitable death? Such are the questions which we shall endeavour to elucidate by cases.

Whilst the grand army traversed Germany in the glorious campaign of Austerlitz, some soldiers, too feeble to withstand so rapid a march, were affected by the cold, and contracted an inflammation of the chest, which obliged them to seek for assistance in the hospitals. After having administered such remedies as appeared the best suited to the degree of the irritation and the strength of the patients, I was surprised to find that no cures ensued, although the sick presented neither the attributes or symptoms of phthisis pulmonalis, as described by authors. Some languished without any restoration of their strength, although they were entirely free from fever, others, after having recovered some of their flesh, gained a voracious appetite, and given every hope of a speedy recovery, suddenly relapsed, and perished in two or three days.

As I had already observed somewhat analogous occurrences,

in the course of catarrhs complicated with intermittent fevers, I examined the pulmonary organs and found that the resemblance was as great after death as during life, in regard to the state of the respiratory organ. I was convinced that a pure and simple chronic induration of the lung existed, depending on inflammation, and I endeavoured to form a clear idea of it by collecting accounts of cases and recording each day the reflexions to which they gave rise. I will select from them such as are complete, beginning with one of pure and simple induration.

CASE I.—*Violent pulmonary catarrh become chronic.*—Guinet, twenty-five years of age, tall, large chest, regular and fully developed skeleton, moderately muscular, but with little fat, naturally pale complexion, brown hair, intelligent, robust, and presenting the characters of what is termed the bilioso-melancholic temperament, was affected with a violent inflammation of the breast, in the hospital of Bruck in Styria, of which I was physician. For more than fifteen days he had a high fever, much cough, so much dyspnœa in the evening that he appeared as if in a violent paroxysm of asthma. The pain in the thorax was not stationary, nor was the expectoration bloody.

I treated him by bleeding and demulcents, followed by somewhat stimulating expectorants, and several blisters, one of which was kept suppurating on the left arm. After about fifteen days continuance of these violent symptoms, which harassed him greatly, they suddenly diminished, an abundant expectoration took place, and Guinet left the hospital in about twenty days from his admission, and twenty-five or twenty-six from the commencement of the attack, declaring that he had perfectly recovered.

Our *corps d'armée* having marched on Trieste, a hospital was temporarily established at Laybach, the capital of Carniola, until the period fixed for the evacuation of that province. I was appointed to this new establishment, into which I a second time received Guinet, about the middle of January.

He was then in the forty-third day of his disease. He told me that his cough had always continued, particularly in the evening, without, however, his having experienced any fever or loss of appetite. He had always marched with his regiment, and carried his knapsack; he had experienced, in common with his companions, alternations of heat and cold, and several tempestuous nights.

All this had so increased his catarrh, that he was obliged to re-enter the hospital on his arrival at Laybach.

I first observed a tolerably high fever, and much cough, the paroxysms of which were very painful. Rest and demulcents, with the addition of anodynes, calmed the symptoms and removed the heat of skin, but this alleviation was only momentary. The fever again appeared; there was a very copious muco-purulent expectoration, he rapidly became emaciated, and died after five days of extreme suffering, about the fifty-first day from the commencement of the first attack.

Autopsy.—*Habitude.* Emaciation extreme, muscles still red, dry, and resisting. *Thorax.* Induration of three-fourths of the posterior parts of both lobes, as is found after peripneumony; that is, of the colour and consistence of liver. No abscess or tubercles. The lungs were very large and completely filled the two cavities. They adhered to the thorax by a few adhesions only, which seemed of long standing; otherwise the pleura had its natural tenuity and transparency. There was nothing remarkable in the rest of the body, the three cavities of which were opened.

Observations.—We cannot fail to recognise here a violent catarrh, which, from being exasperated, degenerated into a peripneumony, and terminated in induration; but this induration did not become fatal till the fifty-first day. There were three febrile exacerbations, and two intervals of calm, when there was a little cough with paleness, and only a partial return of strength. The death was violent, as the induration was rapid in its progress. We always see an inexpressible agony in patients whose lungs have rapidly become impervious to the air, without the fluids and the necessity for respiration diminishing with equal rapidity.

CASE II.—*Chronic pleuro-peripneumony.*—Cario, a man in the flower of his age, dark complexioned, muscular and robust, with a very large thorax, very hairy, entered the hospital of Udine on the 2d of April, stating that he had been unwell for five days. He presented the symptoms of a violent peripneumony; dyspnœa, cough, expectoration of a very bloody mucus, pain in all parts of his breast, but especially towards the last true ribs of the right side. Pulse hard and frequent.

He was bled twice with very remarkable relief; demulcents were employed, as well as blisters over the painful spot. In five or six days the fever yielded, resolutive expectoration took place, and he had a voracious appetite.

Observing that a slight cough still remained in the evening, which Cario would scarcely acknowledge, I restricted his diet for seven or eight days, but overcome by the entreaties of the patient, I increased his food, and in three or four days allowed him three-quarter's diet* in the morning; this produced a relapse so violent as to at once acquire its greatest intensity. Absolute diet. The next day, a return of calm. He remained for fifteen days in the following condition.

Complexion pale with a shade of yellowish straw colour, face a little swelled; no emaciation; heat of skin natural; pulse small, rather slow than frequent, somewhat contracted and a little elevated in the evening, with redness of the cheeks and nocturnal cough; he complained only of not recovering his strength. During this time, I several times wished to somewhat increase the quantity of food, but remarking that the evening exacerbation became more evident, I kept him on a very light farinaceous diet, and gave him slightly kermetized and etherized cough mixtures, induced suppuration in a blister on his right arm, and waited the result, though with but slight hopes.

The 2d of May, there was a sudden return of the first symptoms; the pain in the side was so violent over the sharp edge of the great lobe of the liver, that I believed this viscus to be inflamed. The cough was incessant, the expectoration mucous and very bloody.

I applied topical emollients and anodynes over the painful part, which gave no relief; his suffering was terrible, he was restless, and uttered heart-rending groans. During the night he became moribund, and expired on the 3d of May, about twenty-four hours after the relapse, and the thirty-fifth or thirty-sixth day of the disease.

Autopsy.—We found that the whole of the disease was confined to the thorax;† the two lobes were indurated in nearly their

* The author has reference to the scale of diet established in the French hospitals; this is frequently alluded to in the course of this work.—Trans.

† I am now persuaded that the gastric organs participated.

whole extent to such a degree that it was surprising that Cario should have preserved the exercise of their functions for so great a length of time. The right lobe did not fill its cavity; it was drawn upwards and inwards, leaving a triangular space below, bounded by the diaphragm, the ribs, and by the external surface of the lung which strongly adhered to the mediastinum. This space was filled with a yellowish and somewhat flocculent serosity. The pleura surrounding this fluid was red, thickened, and covered with a yellowish exudation, which was easily torn and unorganized. In the remainder of the cavity of the thorax where the two lobes had some adhesions, I observed that these were red, cellular and organized, having no resemblance to the false membrane of the sero-purulent deposit. I have several times made a similar remark, from which I shall draw some conclusions.

Observations.—This disease differed from the former in its shorter duration only, and in its complication with a pleuritic phlogosis. The symptoms in both cases, were violent at their commencement and just before death; the pain in the side manifestly corresponded to the pleurisy. The violence of the attack indicated from the very commencement, that the inflammation of the parenchyma was peripneumonic. Under other circumstances, it remains for a very long time confined to the mucous glands, or at least is circumscribed to a small space in the bronchial membrane, before it invades all the capillary branches of the pulmonary artery. This we can demonstrate by a number of examples.

CASE III.—*Chronic catarrh changed into chronic peripneumony.*—Charbois—complexion dark, moderately muscular, good colour, predominance of the sanguineous system, entered the hospital of Udine on the 4th of April, 1806, with the symptoms of a chronic catarrh somewhat of an asthmatic character.* He stated that he had been tormented for the last three months with a cold, which he several times thought had been cured, and which for some time past had not prevented him from doing duty; proving that all this time Charbois had never experienced violent peripneumonic symptoms. His *embonpoint* and colour demonstrated that he was not suffering under the usual

* That is, with spasmodic constriction of the bronchiæ.

hectic of pulmonary consumption. I found him as follows: Dyspnœa; respiration *sibilant*, painful, and spasmodic, especially in the evening, when he could not lie down; cough with a thick mucous, and abundant expectoration; a frequent, somewhat large, but soft and feeble pulse; heat of skin moderate, increasing in the evening; expression of fatigue and depression; colour red and a little livid.

Nothing benefited him; the general flaccidity did not permit me to attempt to detract blood, blisters did not effect a moment's alleviation. Charbois expired in a long and painful agony, seven days from his entrance into the hospital.

Autopsy.—*Habitude.* Body with firm and natural coloured muscles, and some fat in the adipose tissue. The internal alterations were confined to an induration of the whole of the right lobe of the lungs, the left was natural. It should be remarked that this patient always preferred lying on the diseased side, and died in this position.*

Observations.—Charbois never complained of any fixed pain, referring his sufferings to the sternal region. His disease began slowly in the form of an ordinary cold, and terminated much less violently than in the cases of Cario and Guinet; this arose from his possessing less activity and strength than these patients.†

We will now give a case in which the patient fell a victim to the same disease, with the most absolute state of calm in the circulatory system.

CASE IV.—*Chronic catarrh with scirrhous state of the bronchial glands.*—Fa, aged upwards of thirty-six, entered hospital No. 3, at Bruges, on the 20th Brumaire An. xiii, and was placed under my care; he stated that he had been unwell for the last nineteen days, but complained only of a cold which continually grew worse, so as to produce difficulty of respiration. Fa could scarcely speak, he articulated a few words in a low voice with much difficulty;‡ his eyes were dim and languid, his face was pale and meagre, his mouth was clean, but without colour or bad

* I am sorry not to have ascertained the state of the heart, it was probably in a state of hypertrophy.

† Perhaps the obstructions in the circulation also contributed.

‡ These are signs of a disease of the bronchiæ, which were lined with mucus, ulcerated, &c. It is tracheo-bronchial phthisis.

taste; no appetite; his thorax rarely dilated, and then with great difficulty, and with a kind of ronchus, *(râle;)* he coughed but seldom, and expectorated merely mucus. His pulse was slow, small, and compressible; skin cold and pale; cellular tissue wasted, but the muscles still preserved a certain volume. This man was well made, and appeared to have been robust.

He lived fourteen days in the hospital, scarcely taking any food, and gradually growing weaker. At last, he could not speak without extreme effort, and hailed the approach of death with pleasure.

I endeavoured in vain to stimulate him by several rubefacient vesicatories applied on the thorax, by wine and cordials.* The most violent remedies appeared wholly inert. On the evening of the 4th of Frimaire, the *rattles* commenced, the patient still retaining all his consciousness; he expired on the 5th, at 4 A. M. after a long struggle. The pulse and heat of body never rose under the use of the stimulants, nor in his last agonies.

Autopsy.—*Habitude.* Body dry; muscles slightly pale, preserving some volume and firmness. The head presented nothing particular. The thorax contained a little serosity, and a few albuminous flakes were discernible on the pulmonary pleura, which was neither thickened or injected. There were but few adhesions, the two lobes were voluminous, and so indurated on their posterior valves, as to equal the liver in firmness.

No tubercles nor abscesses were to be found in the substance of the lungs; but the glands which surround the subdivision of the bronchiæ were thickened, scirrhous, and totally disorganized; and the mucous membrane which lines the interior of this bifurcation was red, thickened, and covered in several places with a whitish exudation, analogous to that in croup. This began in each bronchia, about two inches below the division of the trachea, and was lost in each parenchyma, finally becoming confounded with the induration. The diseased glands were united, and adhering to the bronchial branches, the cartilaginous and membranous part of which was also somewhat diseased.

The heart was filled with very firm concretions, moulded on its fleshy columns. Those in the right ventricle were about as large

* These are faults which I should not now commit, I would only stimulate externally.

as a hen's egg, and appeared to be formed of transparent cells, resembling those of the cellular tissue, and filled with a limpid and somewhat gelatinous fluid, which could be entirely forced out by compressing the concretion between the fingers. In the abdomen, I perceived no other change than an enlargement of the liver, which appeared to be entering into the fatty state.*

Observations.—When it is known that catarrh is primarily an inflammation of the mucous glands, there is no difficulty in recognising in this case the progress of a catarrh changed into a peripneumony. This catarrh, which was obscure at first, depended on an inflammation of the mucous membrane of the bronchiæ. The irritation afterwards was propagated to the parenchyma, that is, at first confined to the crypts; it finally pervaded all the membrane, and attacked the capillaries of the pulmonary vessels. Its first seat retained traces which are not always to be met with, but which are therefore the more interesting to an observer who is desirous of studying the relations of disease.

In reviewing my notes, I find that catarrh has always induced death by induration, from a concurrence of debilitating circumstances.† The four subjects, whose cases I have just given, all had relapses whilst convalescent. These relapses were very common during the campaign of the grand army; the soldiers eager to rejoin their regiments, which were constantly leaving them, solicited their discharge, as soon as they felt any return of strength, and it has often happened, that they have returned the next day, after having marched for some leagues in the snow, and burdened with their knapsack; at other times, from the fear of hospital fever, and from the same desire, as well as dreading the accumulation of patients, which suddenly took place on the arrival of others corps, the physicians themselves permitted patients to leave the hospital before they were perfectly well. Hence the exposure to cold, and the necessity of carrying a heavy burden, renewed a multitude of catarrhs, which would have been cured without any relapse, in a garrison hospital; and these relapses ended in fatal indurations.

Relapses also took place, even in the hospitals, from the want

* There can be no doubt, but that this patient had chronic gastro-duodenitis, but I did not suspect it at the time.

† These causes are also very irritating, and it is this irritation that produces the debility, and from which the indications should be drawn.

of great-coats; the patients going in a half-naked state to satisfy the calls of nature, were exposed to the cold air of the windows and entries; the cough recommenced, and the disease was thus indefinitely kept up. I have seen great numbers relapse in this way, some of whom died under my care, and others went to perish in the various hospitals.

The evacuation of hospitals, and transporting the patients to others, was another cause of relapses and prolongation of catarrhs. The second corps of the grand army, to which I was attached, and which then occupied Styria, having retired from Gratz on Vienna, the sick were sent to Newstadt. Two days afterwards, the news of the battle of Austerlitz permitting the corps to resume its former position, our two hospitals were re-established, one at Gratz, and the other at Bruck.

The patients who had slept in the mountains, exposed to the wind and snow, recovered with great difficulty. It should, however, be remarked, that many of those affected with adynamic and ataxic fevers, did not suffer from this exposure;* but the catarrhs, whether simple or complicated, all recurred with increased intensity; and many died from them in the hospital at Bruck, of which I had the charge. I was not able to obtain an exact history of these catarrhs, but having examined the bodies, I felt convinced that all those who had coughed for a month and a half to two months, who had been subjected to several alternations of fever and apyrexia, and who suddenly died after a slight œdema, had their lungs in that state of induration which is termed *carnification*, or from comparison with the liver *hepatization*.

The evacuation of the hospitals of Gratz and Bruck on Laybach, the capital of Carniola, was also made in the winter, and cost the lives of many soldiers suffering under catarrh, whose cure had been probable. I opened many subjects, in the hospital of Laybach, whose catarrh had been of three or four months duration. The majority of them had informed me that they had relapsed two or three days after having rejoined their regiments. I then began to perceive that catarrh might last for four months,

* This may be readily understood, as cold is the remedy for gastro-enteritis uncomplicated with pulmonary inflammation.

which is the longest duration of it I have met with; those in whom it persisted for a longer period than this were truly phthisical.*

All the causes that I have assigned for the relapses and the termination by induration of pulmonary catarrh, are referrible to the impression of cold, before the organs had gained sufficient strength to resist its influence.† There is another cause which appeared to me to be still more common, which is complication with some other acute disease. Among the cases that I collected of chronic catarrhs which were fatal from induration, I found a greater number of them complicated than simple. Almost all those who had a cold of two or three months continuance, had experienced an adynamic fever.‡ The cough did not always commence with the fever; it often supervened on it, from the patient uncovering himself whilst in a state of delirium, and attempting to escape; sometimes it did not appear except during convalescence, and as we have already stated, it often arose from the patients being obliged to go some distance to satisfy the calls of nature.

Whatever might be the cause, I have often seen these kind of patients perish two or three months after the disappearance of the fever; in these cases it appeared that the induration was induced from the debility of the inflamed capillaries.§

It is to the double attack on the vital powers by the adynamic, ataxic, or typhus fever, and by the catarrh,‖ that a great majority of the deaths in the hospitals of the second corps are to be attributed, from the month of Vendémiaire an 14 to March, 1806. Such is the result of my practice in the hospitals of Bruck and Laybach. I include in this enumeration, those who died of inflammation of the breast in the acute stage of typhus, stating, however, that this number was not the largest; for it is notorious that we lost more men by chronic diseases than by acute fevers.

I will now detail some cases of chronic catarrhs complicated with malignant fevers.¶ As the fever ran its course in a much

* The ontology with which I was then embued is here recognisable.

† That is, had lost their susceptibility and inflammatory habit.

‡ An acute gastro-enteritis.

§ It depended on the persistence of causes which always keep up inflammation. The word *debility* is here synonymous only of *morbid irritability*.

‖ That is, the perpetual recurrence of these inflammations under the influence of the causes of irritation.

¶ These fevers were only gastro-enterites more or less complicated with cephalitis, and are the same as are termed *adynamic, putrid, ataxic,* &c. fevers.

shorter time than the catarrh, I have met with them in several stages of the latter.

In most cases, the fever appeared first; this left the lungs in a state little favourable to resolution, which, however, sometimes took place; in other instances it seized patients who entered the hospital for a recent cold; its effects were still the same; but when it attacked an unfortunate wretch already exhausted by an old cough, death was almost inevitable. I will begin with a very striking instance of this fatal complication.

CASE V.—*Chronic catarrh terminated by an adynamic fever.*—Melkum, a young Hollander, fair complexion, tolerably fat, fleshy, and with a well developed thorax, high colour, moderate sensibility, had contracted on a march a cold, under which he had already been suffering for more than a month and a half, and had endured the evacuation and retrograde movement of which I have spoken, (p. 81,) when I met with him in the military establishment at Bruck, in Styria.

He was without fever; his pulse rather soft than tense, and without frequency; heat of skin natural; he complained of the cough only, which harassed him, particularly at night. He was gay, had a good appetite, his complexion was of a straw colour.

I kept him on expectorants, made a little stimulating by the addition of aromatic waters, and a few drops of laudanum in the evening. At the end of seven or eight days he appeared to be on the recovery.

An accumulation of patients obliged us to place two in each bed; his companion was suddenly seized with a confluent small-pox, which exhaled a gangrenous odour in a few days. As soon as I had a bed to spare, I separated Melkum from his dangerous neighbour; it was too late; his mouth was already dry, his skin burning, his muscular strength failing, and his features becoming fixed. On the seventh day the *rattles* commenced, and Melkum died towards evening, having preserved his consciousness almost to the last, and fully aware of the approach of death; it appeared as if the reaction of his dying moments had restored that activity of mind, of which he had been deprived by the adynamic fever.*

* Thus the gastro-enteritis of small-pox, developed an adynamic fever, without eruption, by means of contagion. This case is valuable.

AUTOPSY.—*Habitude.* The body was of a yellowish-white, but little sanguineous, though not emaciated; the muscles were somewhat pale, as if they had been washed; the cellular tissue somewhat distended by a gelatinous serosity. *Thorax.* On both sides the pulmonary pleura adhered to the costal by membranous and cellular productions, leaving between a large space filled with a serous fluid. But the two cavities greatly differed; in the right, there were very solid, closely connected, strong membranous adhesions; the whole circumference of the parenchyma was hardened to the depth of half an inch. The pleura, at the point where the parenchyma was most diseased, on the posterior and inferior portion, presented some recent adhesions, still in the form of an exudation; the serosity was of a lemon colour. In the left side, the productions forming the adhesions were soft, of a yellowish-white colour, with turgid cells in some parts, and a multitude of others which were purely albuminous and inorganic. The parenchyma was carnified in nearly its whole extent; the serosity was thick and milky. The other cavities presented nothing remarkable.*

Observations.—We here find, as in the case of Cario, a complication with pleurisy; and the different degrees of organization in the productions which formed the adhesions, demonstrated the tendency of the albumino-gelatinous portion of the blood to assume the form and properties of living fibre.

CASE VI.—*Chronic catarrh terminated by an adynamic fever.*—Janoté, a young man, aged twenty-four, dark complexion, slightly formed, and delicate, was in the hospital of Udine for a catarrh which he had contracted during the campaign in Germany; and stated that it had commenced more than two months previously. He had been in the hospitals several times, when the affection of his breast was apparently relieved, and there only remained a little cough and still less dyspnœa, but as soon as he was discharged, and entered on the fatigues of a military life, the cough increased, respiration became painful, and a febrile action manifested itself. In this condition I received him into the hospital at Udine, in the month of March, 1806, at a period when

* It is very evident that having my attention fixed on the lungs, I neglected a proper examination of the gastric organs.

the continued putrid and malignant fever resulting from the hardships of the campaign still raged.

Two or three days after his admission, the symptomatic fever ceased, and the disease assumed its usual chronic state, that is, his complexion was of a straw colour, his mouth clean, he had an excellent appetite, oppression of the breast with much cough at night, a clear mucous expectoration; his nights became more fatiguing when we attempted to increase his evening meal, there was a slight redness of the cheeks, a certain hardness of pulse without frequency during the nocturnal exacerbation of the cough. He did not regain his strength; his face had a tendency to become tumid; his legs swelled slightly in the evening, and for some days a slight serous effusion throughout all the subcutaneous tissue gave a roundness to his form. His muscles were already much diminished in size, but he was far from being in a confirmed marasmus.

Such was his state, which I endeavoured to ameliorate by a combination of mucilaginous and slightly aromatic remedies, and by the use of oxymel of squills, and pills of ipecacuanha and opium, taken in the evening, to which he was indebted for several good nights; such, I say, was his situation, when on the 13th of March, he was seized with a chill which lasted almost the whole day. In the evening the heat increased; the second day, the mouth became foul, his countenance showed marks of stupor, and his muscular strength disappeared. I judged that he had been affected with the deleterious miasma of the hospital typhus,* and anticipated a fatal result. He calmly expired on the seventh day, the febrile action had exhausted all his strength, and removed the effusion in the adipose tissue, so that Janoté sunk in a state of complete marasmus, cold, almost without pulse, and without a struggle.

Autopsy.—*Habitude.* Body emaciated, and without infiltration. *Head.* Great effusion of limpid serosity on the arachnoid, both externally and in the cerebral ventricles; medullary substances white and tolerably firm. *Thorax.* Some slight adhesions in different spots, and a very small exudation of a gela-

* The oxymel of squills, which I gave as an expectorant, on the recommendation of authors, perhaps contributed to the development of the gastro-enteritis.

tinous, soft, and unorganized matter. The right lobe healthy; the left lobe entirely indurated, a little lemon-coloured serosity in the pericardium. *Abdomen.* No lesion.*

Observations.—It is not surprising that an adynamic fever should have terminated fatally in a patient already debilitated by another disease,† but what is worthy of remark, is the absorption of all the effused serosity, from the reaction induced by the contagious miasm; thus, an unusual stimulus may suddenly develope forces which had remained *in potentia.* In many cases, art might, by imitating nature, effect astonishing cures; but the excitement should not as in this case be of such a character as to exhaust in a rapid manner, those forces which indicate a longer existence.

The following is another case of chronic catarrh terminated by a fever, which I here insert as a striking example of the difference existing between a constitutional disposition to catarrh and an innate tendency to phthisis pulmonalis. It concurs, with a multitude of other well known facts, and which only require to be compared, to demonstrate that it is not sufficient that a patient should have merely suffered for a long time with a disease of the thorax, and been subject to a cough, to declare that he is consumptive.

CASE VII.—*Chronic catarrh terminated by an adynamic fever.*—Thiberge, a soldier in the 35th regiment of infantry, aged about thirty-four years, irritable, chesnut hair, well formed, but muscular, having his thorax tolerably developed, entered the hospital of Bruck before the removal and return already spoken of. He was then affected with a boil on his foot, which degenerated into a small but very obstinate ulcer. Thiberge had from that time a little cough, but much less than when the army left Holland; for this man had been in the hospital at Utrecht, several times during the last year, for violent catarrhs. He had a weak‡ breast, which was very sensible to the impression of cold air. I had learnt that he habitually complained of his breast, from M. Bernard, the surgeon of his regiment; but not having seen him myself, either in Utrecht, or in the wards for the wounded in

* The same remarks apply here as in the preceding case.

† Here is ontology. (See *Examination of Medical Doctrines*, &c.)

‡ Read irritable.

the hospital at Bruck, I am unable to give any description of his usual appearance, or of the precise state of his pulse.

After having participated in the fatigues of the retreat over the mountains, he returned with a very violent cough, accompanied with heat and fever, and was already pale and much emaciated. This reaction was soon alleviated by expectorants; but the cough, the dyspnœa, and the want of any restoration of his strength, did not give me much hope.

After remaining for ten or twelve days in this ambiguous state, his mouth became dry, his tongue encrusted, his skin burning, with a complete prostration of strength, there was stupor and obscure delirium; his pulse was small, trembling, and quick.

I recognised the fatal impression of hospital miasmata, which was then very active. I administered wine, camphorated draughts, extract of bark, and blisters* without delay. His strength appeared to be somewhat increased, but on the seventh or eighth day it again declined. The fever ceased, the cough became harassing, and the expectoration was mucous and bloody, diarrhœa had commenced with the fever. The eighth day he could scarcely articulate, his cheeks became flushed, and the *rattles* began; he expired on the night of the eighth, after a tolerably hard struggle.

Autopsy.—*Habitude.* Body very much emaciated, but the muscles were yet somewhat developed, coloured, firm, and resisting. *Head.* Serosity in the arachnoid. *Thorax.* The right pleura presented a few slight traces of exudation only. The posterior part of this lobe was engorged and disorganized; it may be supposed that there was extravasation in it, and that the tissues were broken up, but the induration was soft and pasty. The left lobe presented many very close adhesions, in the intervals of which was found a gelatino-albuminous exudation, and a lactescent serosity. All the posterior half was as solid as the liver. No tubercles. Serosity in the pericardium. *Abdomen.* Cavity of the peritoneum dry. This membrane, and all the other tissues of the same cavity in a natural state.†

Observations.—The peculiarity of chronic catarrh is to gra-

* This shows how much I was then the slave of Brunonism.

† I am now fully convinced that the mucous membrane would have presented traces of inflammation if it had been scrupulously examined.

dually destroy the forces of assimilation and absorption, without keeping the sanguineous system in a continual state of excitement, and without raising the natural heat. It appears then that Thiberge had not arrived at the last stage of it, as a serous effusion had not yet dilated the cellular tissue. Hence the muscles were found coloured, and their fibres approximated.

The carnification which existed but in a slight degree before the fever, was rendered complete by it: and the patient perhaps perished a month sooner than he would in a place and time where he would not have been exposed to contagion.

I have often met with the complication of adynamic fever with catarrh. Generally, the two diseases commenced at the same time, and there was then at least a hope of curing the fever; but when the catarrh has lasted in an individual for a long time, who has not yet been affected by contagion, and this man enters a hospital where the typhus is raging, he is very apt to contract it, and if he be seized, his death is inevitable, as the examples have shown. Many other cases presented themselves, but not having sufficient details of them, I will content myself with mentioning them in a general way.

I saw both at Bruck, in Frimaire, Nivose, and part of January, at Laybach in January, and at Udine in March, 1806, more than thirty men who had been attacked with cough without fever, one, two, or three months previously, and who expired with symptoms of typhus; and that this number may not appear extraordinary, I would mention that I opened the bodies of the patients of my fellow practitioners, when there was any one who divided the charge of the hospital with me, and that I took notes from the information given me by the attending physician. In this way, I am indebted for many interesting observations to the kindness of MM. Corafa and Guinet, who were conjoined with me in charge of the hospitals of Laybach and Udine.

It was also very common to observe a catarrh arise with a continued fever, or during its progress, remain after the cure of this fever, and slowly terminate in a fatal induration. In vain have I congratulated myself in having snatched a victim from death; scarcely has the patient regained a little strength and flesh, when I would perceive a slight tendency to effusion. Generally, these subjects thought little of their cough, which they regarded as a trivial circumstance, and as a symptom which would not

prevent the restoration of their usual health. As for myself, I soon perceived that this slight cough, which apparently fatigued them a little at night only, was the cause of their languor. I in vain tried blisters, cauteries, setons, &c.; all the patients, in whom the cough did not yield at the same time as the fever, or a few days afterwards, perished; and dissection convinced me that they owed their death to a chronic induration; I do not include the real consumptive patients, of whom I will speak in another place. Among the numerous cases of chronic catarrhs following acute fevers, of which I have kept notes, I select the following, as the history of them is full and complete.

CASE VIII.—*Chronic catarrh supervening on adynamic fever.*—Payo, a young Piedmontese soldier, aged from twenty to twenty-two, tall, long-limbed, muscles not prominent, large thorax, brown hair, rather dark complexion, was in the hospital of Bruck in Frimaire, ann. 13, when I took charge of it, two days after the evacuation and reinstallation of the establishment, in the fatigue of which he had participated. I found him in a state of adynamic fever, complicated with a very violent catarrh. He complained of no fixed pain in the breast; but he coughed much, and had a kind of ronchus. I was for several days fearful that this state would terminate in death, and I multiplied the rubefacient vesicatories, at the same time using internal means calculated to overcome the nervous force.*

After twenty days illness, the fever entirely ceased; and five or six days afterwards the patient appeared convalescent. Nevertheless, the dyspnœa continued to harass him much, and my fears were renewed each day, when on approaching this patient, I found him lying on his back, scarcely able to speak even in a whisper, and filling his night vessel with a white, thick and almost puriform sputa. I made a free use of the oxymel of squills, the kermes and the other stimulants called *expectorants*, which it is usual to combine with demulcents in these sort of cases. Draughts with extract of bark, appeared to me to alleviate him more than all the rest; their use was followed by a restoration

* This man was, therefore, cured, or at least the acute state of the gastro-enteritis was removed, notwithstanding the use of stimulants, and it was changed into the chronic.

of his appetite; finally, Payo began to sit up, when the hospital was again evacuated.

I again found this patient at Laybach, on the 15th of January, when I took charge of it; he had arrived the evening before. He told me that he had borne the journey tolerably well, and had but a slight cough. In fact, I saw that he had nearly regained his flesh, and that he walked most part of the day in the courts and corridors of the hospital. He had an excellent appetite; his complexion was yellowish-brown; his physiognomy appeared a little rounded by a slight but visible œdema, particularly about the eyelids; he seemed constantly to dilate his thorax with some effort; he coughed often, and always expectorated an abundance of sputa, similar to that I had observed at Bruck. His pulse and heart had nothing morbid in them during the day; in the evening his pulse was accelerated, his face red and tumid, and his nights were very uneasy; finally, he died on the 25th of January, after a strong struggle, with a gurgling respiration. I attended him during fifty days of his disease; but I am confident that the cough preceded the adynamic fever for some time.

Autopsy.—*Habitude.* The body was in a state of semi-marasmus, which proved that the apparent *embonpoint*, which he had regained, was only a lymphatic infiltration, which was absorbed on the approach of death. The face, however, was tumid and livid, as was also the neck. *Head.* Nothing remarkable except a slight serous effusion.* *Thorax.* Cavity completely filled by the lungs. The right lobe much engorged, its capillaries being so much developed as to appear varicose, pouring out a quantity of blood mixed with froth, and a white and thick mucus when they were cut or torn; the lung was still obscurely crepitant. The whole surface of the left lobe presented adhesions which were slightly organized, but at the same time easily torn; parenchyma engorged, but still permeable in its anterior part, and indurated and visibly disorganized throughout the remainder of its substance; this induration, however, had not an hepatic firmness; the heart somewhat aneurismal, without any concretion in its ventricles. *Abdomen.* Sternal ribs permanent, and pushed outwards by the great size of the liver and spleen, which were

* This effusion would correspond to a certain degree of arachnitis, an attendant on gastric irritation.

much engorged and very hard; intestines meteorized. All the capillaries of the abdomen were injected, and gave the viscera a somewhat livid appearance; there was not however any decided marks of inflammation in this cavity.*

Observations.—The case of Payo is remarkable, from the predisposition of the subject to an aneurism of the heart. To this we may attribute the abundance of the expectoration, and the engorgement of all the abdominal venous system.

We shall recur to this fact elsewhere. I will now remark only, that the engorged and varicose state of the pulmonary venous system should be scrupulously distinguished from induration, which can arise only from inflammation. But both these dispositions were observable in the body of Payo. The right lobe was engorged like the liver and spleen, whilst the left retained traces of inflammation in the pulmonary sanguine capillaries, terminated by induration.

I cannot refrain from also adding, that the disposition of the blood to remain in the capillaries, a disposition inseparable from aneurism, gives these vessels, after a time, a tendency to violent inflammations, and consequently, to firm indurations.

CASE IX.—*Chronic catarrh, following a continued fever.* —Joniot, aged about twenty-two, dark complexion, of ordinary stature and corpulency, but thorax natural and tolerably well developed, was treated by me at Laybach, for a continued petechial fever of no great violence. During his convalescence the hospital was evacuated. I again received him on the 20th of March in the hospital of Udine, where he was sent on the evacuation of Palma-nuova.

He stated to me that his cough had never ceased, though he had never been released from doing duty with his regiment for nearly twenty days. Afterwards the return of the cough with fever obliged him to enter the hospital at Palma-nuova. When I received him he had dyspnœa, high fever, and alteration of his features. He died the next day, about fifty days after the termination of the continued fever.

* What more did I require as characteristics of a phlegmasia? But at that time I had not recognised chronic gastritis, which I afterwards discovered at Udine.

AUTOPSY.—*Habitude.* Body emaciated; muscles a little pale, and their fibres separated; he had been a little swelled. *Head.* Much serosity in the lateral ventricles. *Thorax.* Left lobe every where adherent, (adhesions organized,) firmly indurated throughout three-fourths of its substance, the superior part of it softened and like jelly. *Abdomen.* Nothing remarkable except great meteorism of the intestines, particularly of the stomach.*

Observations.—This catarrh, after having remained nearly two months in a chronic state, suddenly changed into a very acute peripneumony. I have often prevented chronic catarrhs from assuming this character, by putting the patient on a regimen as soon as I found the pulse become hard and frequent, and the heat of the skin increase. I have sometimes met with these exacerbations five or six times during the progress of a catarrh. We have seen that Cario, (Case II.) had two in the course of a month. Not having seen the termination of other analogous cases which I took notes of, I am unable to detail their histories. It is probable that if Joniot had been in a hospital, the return of the acute state might have been prevented; but he was with his corps, and could indulge his appetite.

The following case is not one of a simple catarrh, but I must prepare my readers for complicated chronic phlegmasiæ, the theory of which is not less interesting than that of the simple forms, provided we never lose sight of the primary disease, or the disorder whose existence induces the secondary lesions.

CASE X.—*Catarrh with pleurisy, chronic arachnoiditis, and peritonitis, following a continued fever.*—Bernard, aged from twenty-three to twenty-five, dark complexion, medium height, tolerably corpulent, full chest; was treated by me at Laybach, in the convalescence of an acute fever, of which I could not learn the precise character. He then complained of a very harassing cough, but which had not destroyed his appetite, and had left him tolerably strong and corpulent; he was forced to leave the hospital with the others, and I did not see him again till I met him at Udine, in the beginning of March, two months after having lost sight of him. He stated to me that he had rejoined his corps, but that the obstinacy of his cold had compelled him to return to

* The same remark is here applicable. (See preceding note.)

the hospital; he calculated that it was then three months and a half since the commencement of his attack.

I observed him attentively; he coughed much, expectorated but little, and that was only mucus; he had no fever; the abdomen was a little tense and painful, but his digestion was good; he had no diarrhœa or colic; pressure, unless violent, did not occasion pain. When he first arrived, the functions appeared a little disordered, but demulcents removed this in less than twenty-four hours; he regained his gaiety, appetite, and so good an expression, that his cure seemed probable.

Nevertheless, he did not recover his accustomed strength; and although his features were serene, a slight tinge of straw colour was discernible in his complexion. These two circumstances prevented me from flattering myself and from allowing him to satisfy his appetite. After remaining twelve days in the hospital, feeling himself almost well, and wishing to be dismissed, he concealed his cough, and obtained a three-quarter's allowance of diet.

Three days afterwards a high fever supervened, the dyspnœa increased, the cough redoubled, the abdomen appeared tumid and became more painful, and his complexion altered prodigiously. I combated this by diet and gummy and aqueous drinks; I intended to resort to blisters, from which an apparent success was several times obtained, by causing them to suppurate; these had now healed. Bernard refused to submit to them, thinking that it was all over with him, and I did not wish to constrain him.

However, after three or four days of storm, a calm recurred, and with it the appetite returned. Bernard again began to take food; in five or six days his features resumed their natural appearance, gaiety and hope reanimated them, and he regained his flesh. The pulse presented nothing worthy of notice, except a slight weakness and frequency in the evening; but this amelioration was accompanied by an œdema in the face and feet, which had not previously been observed, and the nocturnal cough was more violent than before the exacerbation. In this insidious state, Bernard suddenly became moribund, and died four months and some days after the commencement of the first acute attack.

Autopsy.—*Habitude.* Body somewhat emaciated; the cellular tissue although pasty, and as it were gelatinous, contained but a small quantity of *diffluent* serosity. The muscles were a little pale, and their fibres slightly separated. *Head.* The arachnoid,

which was sensibly thickened and opaque, had exhaled a lymphatic, ash-coloured humour, somewhat viscous; the serosity in the ventricles and cerebral fossæ was moderate in quantity, whitish, and a little flocculent; the cerebral substance was in a natural state. *Thorax.* Right lobe slightly indurated at its posterior surface, and somewhat adherent; the left adhered in almost every part by means of an organized and dense substance at its posterior part, whilst anteriorly it was semi-gelatinous and loose, leaving a considerable interval between the pleural surfaces filled by a purulent and flocculent serosity.* This exudation could be detached from the pleura in the form of a thick, yellowish, porous membrane, which, when compressed, permitted the fluid to escape, leaving a friable and albuminous cellular tissue. The parenchyma was in a state of red induration, and in some spots was softened and yielded to the finger, but there were no abscesses or tubercles; the heart was natural. *Abdomen.* The liver and spleen not diseased; the peritoneum every where slightly thickened and opaque; its surface almost wholly covered with a yellow, porous, gelatino-albuminous, half-organized exudation, especially in the triangular space left between the intestines, (caused by their cylindrical shape,) and the anterior parietes. It acted as a medium of adhesion to all the visceral surfaces within the peritoneal cavity, except at the convex portion of the liver; the intervals were filled as in the thorax, with a yellowish and flocculent fluid. The muscular and mucous coats of the whole extent of the alimentary canal were in a healthy condition.

Observations.—I have often been surprised at the simultaneous tendency of the several organs to take on inflammation. It is a fact well worthy of the attention of physiologists. When a viscus is suffering under a chronic inflammation, it is very common after a time to see some other in the same state. It is a species of sympathy. I have remarked that it generally occurred between organs of analogous structure and properties. The serous membranes have often presented me with examples,† which will be noticed hereafter.

It is not surprising that Bernard presented no symptoms of frenzy, and that those of the peritonitis were so obscure. In cases

* These are traces of pleurisy.

† This affords one, as there was pleurisy at first.

of consecutive, and as it were irritative chronic inflammations, it is only the primary affection that will be strongly marked; because the secondary phlogoses are languid from their very commencement, and they take place at a time when the faculty of sensation is already greatly diminished.*

The course of the symptoms teaches us that Bernard had been predisposed to the disease which carried him off, by an acute fever;† that the catarrh was the first chronic phlogosis that was perceived, either from its being so in fact, or from the lungs being more sanguine and sensible,‡ and thus giving a more exact evidence of their sufferings. I am the more induced to believe that it was the original nucleus of the chronic affection, as when the peritoneum is acutely inflamed, the pain is excruciating. But Bernard never complained of the symptoms of acute peritonitis; those of the arachnoiditis were still less developed; there was no pain in the side to give rise to a suspicion of an irritation of the pleura. If these three serous membranes are easily affected, it is because their phlogosis does not take place except at a time when sensibility begins to decline, for their inflammation is always very painful when in an acute state.

The catarrh alone gave evidence of its existence. To it may be attributed the languor, the cough, the disposition to dropsy, and the returns of the acute fever. The other inflammations concurred in destroying the patient, before the emaciation and marasmus had made much progress. The absence of hectic fever explains why this progress did not take place, and we already have a proof that an extensive inflammation may exist for a long time without greatly deranging the circulation, when it is not painful, and when its material product is not altered and decomposed by the air.

Chronic disorganization of the lungs by induration, may occur with other complications, but as it is the fundamental disorder to which the state of languor and deterioration of the functions are attributable, it deserves a place in this chapter; for this reason we have inserted chronic catarrhs supervening on acute fevers. In

* This rule is susceptible of exceptions. I have seen consecutive peritonitis which was very painful.

† Which I did not see.

‡ The pleura is less sensible than the peritoneum; hence the first of these two reasons is the best.

fact, a continued fever is independent of a catarrh, especially that which arises from hospital miasmata; it is complicated with it only on account of a predisposition in the lungs. This cannot be doubted, since the fever may occur at the middle or the termination of a catarrh, as well as at its commencement, as our observations have shown, and since this fever is not complicated with catarrh when the cold season has passed away. This we also observed at Udine. The petechial fever* was almost always complicated with catarrh at Bruck and Laybach. At Udine this complication became rare in the month of March, and after that period to the end of the summer I never met with it. Hence, sanguineous pulmonary inflammation is a species of lesion which may exist independent of every other, and which preserves its fundamental characters when it is complicated with the phlegmasiæ, as well as with continued fevers.

In the preceding observation, the symptoms of catarrh predominated over those of the complicating diseases, to such a degree that it alone could be characterized. In the succeeding it was so disguised by the invasion of another phlegmasia, that I scarcely suspected its existence.

CASE XI.—*Chronic catarrh terminated by an acute dysentery.*—Cosset, twenty-four years of age, hair and complexion of a deep brown, having a full chest, and rather slight limbs, of a medium height, and great sensibility, entered the hospital at Bruck for a dysentery, with which he had been tormented for some days; he had a constant desire to void his excrements, and exhausted himself by violent efforts, which were generally ineffectual. The dejections were mucous and bloody; his pulse was small, corded, augmented in frequency in the evening, and then accompanied with dryness of the mouth. I put him on a sweetened solution of gum Arabic, and gruel, as his only nourishment.

The dysentery continued equally violent for about twelve days. Cosset complained of the pains in his abdomen only, and of the fatigue arising from his frequent dejections; but for myself, being unfortunately too much habituated to the physiognomy of chronic catarrhs, I was struck by a certain tumidity of the face, with an œdema of the eyelids, and a straw-colour of the com-

* Like the others, it was a gastro-enteritis.

plexion, which did not appear to me to arise from the dysentery. My repeated inquiries of the patient obtained for me but little light on the subject; he said that he had indeed been affected with a cold before the commencement of his intestinal disease; but he always preferred dwelling on this latter complaint. I therefore ceased paying particular attention to the thorax, and confined myself to the mitigation of the abdominal pains, which were unusually severe, and Cosset died on the sixteenth day. Two days previous to his death, he enjoyed a perfidious calm, resulting from disorganization of the viscera, and loss of the faculty of sensation. But his death was preceded by a violent and terrible return of his former pains, and he suddenly expired in a convulsive trembling, accompanied with cries and contortions.

Autopsy.—*Habitude.* The body was pale; face greatly emaciated; lower extremities much infiltrated, and the muscles pale, with their fasciculi as if washed and separated. The *head* presented nothing remarkable. *Thorax.* I found the two lungs in an almost complete state of *hepatization.* The pleura had no adhesions. *Abdomen.* The mucous membrane of the large intestines, was every where thickened, disorganized, black, especially towards the rectum, and sphacelated. The omentum and mesentery were much injected, the stomach and small intestines healthy, but much contracted; no other alterations perceptible.

Observations.—The inspection of the lungs having convinced me of the pre-existence of a chronic catarrh, I interrogated some of his companions, and learnt that Cosset had suffered from a cold for a long time: this was all I could ascertain; but it was enough to show to what point a catarrhal inflammation may disorganize the lungs, without giving scarcely an indication of its existence, when the cause which has produced the first affection of the viscus still continues to act. Chronic catarrh, when complicated, is especially difficult to distinguish, in consequence of the silence of patients, who, in most cases, seldom allude to the cough when they have some other more prominent affection.

A very deplorable proof of this is afforded in the complication of catarrh with intermittent fever. It is surprising that authors who have treated of intermittent fevers *ex professo*, should have paid so little attention to this complication, which, however, is common.

When I took charge of one of the hospitals of Bruges, the 9th Brumaire an XIII. I there found a great number of patients, in

whom the intermittent fever had ceased, and who were waiting the restoration of their strength. Many had the abdomen a little swelled, and might be supposed to be affected with that noted obstruction, which succeeds to badly treated intermittents. In a great number, the tendency to œdema was manifest, and the complexion was remarkable for that straw-coloured tint of which I have spoken.

I at first supposed that I had to do only with a swelling *(empâtement)* of the abdominal viscera, depending on the general debility of the system, and I had recourse, *(ritè,)* to the bitter, tonic, and vinous remedies, combined with such as are recognised as having the property of exciting the secretion of urine.

Some of these patients having died, I hastened to examine their bodies from which so much was to be learnt. What was my astonishment, after five or six autopsies, at constantly finding the lungs hepatized! In some, the violence of the cough had prepared me for this appearance; but, on the other hand, there were several in whom I observed the effects of the disease, without having had a previous suspicion of its existence.

I then observed, with the utmost attention, those patients whose actual state might lead me to the fear of a similar result; I found ten or twelve of them, who, after having experienced several relapses of intermittent fever, were now exempt from it, they were feeble, and could not recover their strength, although possessing a tolerable appetite; they had the straw-coloured complexion, and appeared from a certain roundness of their form, which could not be attributed to fat, to be disposed to dropsy. In some of them, the spleen was enlarged, but this was not generally the case. Moreover, a few complained of a kind of dry nocturnal cough. To ascertain its existence, I resolved to visit the patients at one or two o'clock in the morning; I now discovered that some, who in the morning were in high spirits, and said that they scarcely coughed, had a slight heat of skin, frequent pulse, slight suffusion of the cheeks, a dry and sometimes violent cough. In following the course of these chronic coughs, I was soon convinced of the analogy between these patients and those in whom I had found hepatizations after death.

The face suddenly appeared infiltrated, especially the eyelids; the hands and feet became œdematous; the *rattles* soon occurred in the patient, and he perished in agony. Others became com-

pletely dropsical, and in a few days attained an immense size. All eventually died, and dissection showed that the principal lesions were, indurated lungs, and an inflamed pleura.

I greatly regret not having then collected the histories of the principal patients affected in this manner, whom I saw perish, and afterwards opened; hence, I am enabled to give a summary only of the cases, as I find them in my note books.

Among the patients who thus remained yellow, languid, and tumefied after an intermittent fever which had lasted for a long time, or had frequently returned, there was scarcely one in ten who had not a chronic catarrh.*

The catarrh was not the only disorganization which kept up their languor. In several, the mucous membrane of the alimentary canal, especially of the stomach, was the prey of a latent phlogosis. In a much smaller number, the peritoneum was affected with a chronic inflammation; with few exceptions, the liver and spleen were exceedingly enlarged in these patients.

The most common causes of the languor succeeding intermittent fevers were, therefore, chronic inflammations of the lungs, either of their parenchyma, or their serous membrane, and of the digestive canal, more generally of its mucous coat than of the peritoneum.

The total duration of these diseases was from six weeks or two months, to four. As the affection of the lungs, in this epidemic, was the most common disorder, as well as the most influential, the most readily induced, and the most difficult to cure, I endeavoured to ascertain how it took place, and to account for its frequency. I will here detail the reflexions I then made; they appear to me calculated to shed some light on the etiology of organic affections which derive their origin from intermittent fevers.

Having examined a multitude of patients at the time of the commencement of the attack, in the cold stage, I always remarked that they had a slight cough. Since I made this observation, I have thought that it requires very strong lungs to escape catarrh when frequently attacked with fever, and experience has convinced me that almost all feverish patients take cold during the winter.

The opinion of the ancients,† who thought, that in the cold

* I ought to observe, that it was towards the end of the autumn.

† It has been pretended that I have wished to appropriate this idea.

stage, the blood left the external capillaries and was collected in the viscera, to be thrown out again with violence during the hot stage, has been rejected. Physicians are content with considering the chill as a nervous or spasmodic phenomenon, or else abstain from every explanation of its cause, and from all theory as to its mechanism. This reserve appears to me to deserve censure. The chill in fevers is a phenomenon of the greatest importance, and I do not hesitate in here giving all the ideas I have formed respecting this too much neglected doctrine.

I do not attempt to explain the cause of the chill;* but will content myself with an examination of its mechanism and effects.

The chill presents us first with a painful sensation referrible to the skin, analogous to that we experience from the contact of bodies which abstract caloric from us; to this is soon joined a convulsive trembling of the muscles; but what is most painful, is a strongly-marked sensation of constriction of the breast, and uneasiness at the epigastrium. Interrogate patients, and they will tell you that it is this which harasses them the most. Whilst this painful impression is felt in the midst of the vital organs, the external parts are contracted and pale. Who can doubt that the viscera are at this time the seat of a capillary engorgement? can this engorgement exist without a local augmentation of sensibility? No, certainly not, since inspiration fatigues the lungs, and excites cough; and the stomach loathes drink. Observe a fever patient in the cold stage, and you will see him bury his head beneath his bed-clothes, in order to inspire warm air. When the inverse reaction constituting the hot stage has taken place, the cough ceases, the lungs desire cool air, and the stomach relishes refreshing drinks.

Can it now be supposed that such actions, which tend to overburthen the capillaries of the viscera, can be repeated for any length of time without danger? The least that can result, is perhaps the loss of tone, as this is still reparable for some time. But the extravasation, the rupture, and phlogosis are usually more dangerous, and take place with great facility during fevers, especially if patients be predisposed to them. If a hundred bodies be opened, and a summary of the appearances drawn up, I

* The appreciable physiological cause is the irritation; every irritation, every internal or external uneasiness may occasion chill.

am persuaded that a majority of the derangements may be referred to disorganization of the viscera, and that their vessels will be found dilated, their capillaries ruptured, the inter-parenchymatous cellular tissue filled with extravasated fluids; in short, analogous appearances to those left by inflammations.

Thus, the chill of intermittent fevers has the same effect on the lungs, as that produced by the impression of cold air or cold water. Like these bodies, it suppresses the cutaneous evacuations, and in a similar manner tends to replace them by internal discharges. It often induces copious and pale urine, an evident sign that there is an accumulation of serous fluids about the kidneys. In the same way as cold most generally affects the lungs, as being the most feeble of the vicarious substitutes for the skin,* so also, a febrile chill more frequently induces a catarrh than a gastritis, a diarrhœa, or a peritonitis, except there be some particular circumstances which predisposes to these diseases. But the analogy does not remain exact for any great length of time; for the repeated attacks of the fever having finally exhausted the forces of the general capillary system, all the viscera are disposed to engorgement and disorganization.

Why therefore should we be now astonished, that there are ataxic intermittent fevers? Let this be reflected on. In what do these fevers differ from the simple forms? In nothing, perhaps, except their intensity. . . .

If intermittent fever offers, as a special character, an alternate change of actions from the circumference to the centre, and from the centre to the circumference, is it surprising that these changes never occur without menacing the organization with an approaching danger? In every febrile chill is there not headache, is there not dyspnœa, cough, violent contraction of the stomach, spasm throughout the alimentary canal, trembling and convulsions of the voluntary muscles? Well! let one of these actions be so violent, that the movement of expansion is unable to overcome and repel it by exciting the forces, will you not have one of the symptoms of a dangerous fever? If the cerebral congestion be too great, there will be an apoplexy or convulsions. If the pulmonary capillaries be overwhelmed and unable to expel the blood with which they are distended, and which excites pain

* The most vascular, the most active.

in the nervous expansions of the mucous coat or the pleura, we must expect symptoms of a most violent pulmonary phlegmasia. If that sensitive organ, the stomach, become convulsed from a too impetuous influx of nervous forces, and too violent an erection of its capillaries, horrible cardialgias and vomitings will take place, or colics and diarrhœa if the greatest action be in the intestines. If the liver becomes the seat of this central accumulation, its secretion will be greatly increased, &c.

Having practised medicine in countries where intermittent fevers are endemic, I was enabled to observe them carefully; I found that an immense number of them had a more or less marked shade of what are termed *ataxic symptoms*. In one, the chill was long and insupportable; another was particularly harassed by the violence of the trembling; a third, was fearful of suffocation; a fourth vomited, a symptom I very frequently met with; but the most common of all, was a slight cough with a feeling of constriction of the chest.

This is not the place to enter into the details of the treatment of intermittent fevers; but as I cannot pursue my researches on chronic diseases, without recurring to their sources, and as the catarrh is often induced by these fevers, I am forced, after having indicated in what manner the febrile phenomena are produced, to observe whether the treatment may not sometimes concur in its production.

Since we have already shown, that the series of vital actions which constitute intermittent fevers, may of itself, tend to produce inflammatory nuclei in the lungs,* would it not be advantageous to destroy these actions as soon as possible?† Is not this the procedure when an ataxic intermittent is discovered? If simple intermittents differ in their intensity only, why not pursue the same plan towards them? Have not a host of physicians advised that these fevers should be combated as soon as they ap-

* Every intermittent fever is a sort of wandering phlegmasia, whose irritation is suddenly developed in the viscera, and afterwards carried off by perspiration. It is not astonishing, therefore, that this phlegmasia suddenly assumes a fixed character, which may be either acute or chronic, especially if the viscera be irritated at the time it is seated in them, and in those cases where its solution by perspiration or any other crisis is not complete. (See *Examination of Medical Doctrines*, &c.)

† By antiphlogistics if they be violent; afterwards by tonics during the apyrexia, when this is complete.

pear? Have not the Brunonians hastened to oppose them by the most energetic febrifuges?

Nothing appears more seducing than such reasoning. In truth, I do not pretend to lay down the law, I will only relate what I have observed; I have found that many patients to whom I hastily administered bark, complained of a pain in the epigastrium which followed the suppressed fit; that their digestion became painful; that sometimes a well-characterized hypochondriasis took place; that at other times an inflammation of the mucous coat of the stomach and intestines manifested itself. But I refer what I have to say on this subject to the history of the phlegmasiæ of the digestive canal.*

As to catarrh, it could not always be cured; its march towards the chronic state was not checked by the suppression of the attacks. It appears to me that the continuance of the fever favoured the duration of the catarrh, but was less likely to produce affections of the abdomen, than the premature use of bark. There is, however, a very important distinction to be made.

In the damp and cold climate of Belgium and Holland, advantageous results were obtained from the immediate administration of bark. At Udine, situated in a dry and hot country, where I have since practised, I never succeeded in cutting short a single case of fever from the month of August, 1806, to the autumn, without observing a succession of those symptoms of inflammatory sensibility of the alimentary canal, of which I have spoken. This can only arise from a difference in the gastric susceptibility. The climate of Belgium destroys the irritability of the gastric mucous membrane, and enables it to support much stimulation; the atmosphere of Italy, being more strongly charged with caloric and electricity, communicates a sensibility to the organs which does not permit the use of irritants. The chronic phlogoses of the gastric organs, of which I shall soon treat, place this fact in a clearer light.

The treatment of intermittent fevers, complicated with a disposition of the organs to phlogosis, and exhaustion with extreme susceptibility, is one of the most delicate points of medical doctrine. If we abandon the fever to nature, as many respectable

* Especially as the principal point of irritation in intermittent fevers is seated in the gastric organs.

authorities have recommended in the simplest cases, confining the treatment to the use of bitters, we shall often observe, especially among soldiers, that their strength will rapidly disappear, and, at the end of ten or twelve days, there will be a manifest disposition to dropsy, and but too often, the catarrh will show no tendency to resolution. If we hastily attempt to cure the fever, the stomach will remain sensible, and we shall have to combat a gastric or intestinal inflammation.

It will be said, however, that fevers are every where treated with bark. I know that this practice is general in hospitals; but where is it successful? In robust subjects, in those who are but slightly affected, or in those in whom the viscera are still sound; happily this always includes the greatest proportion, and thus furnishes inducements to every practitioner, to extol the method that he has pursued. But I now only speak of difficult cases, and which it is very important should be properly studied. No, nothing in medicine presents more difficulties than the treatment of intermittent fevers in subjects, whose viscera are sensible, and whose constitution is broken. Nevertheless, these two circumstances are very common in armies. When an epidemic, or a season of intermittent fever draws to a close, the hospitals are filled with men who could not be cured by the plan which succeeded in more robust patients; and most generally, the wards are only cleared by the hand of death.

It is this form of chronic diseases which particularly attracted my attention. It is in the hope of diminishing the number, if it be possible, by precautions in the treatment of the fever, and to snatch some of these chronic cases from death, that I subjoin some additional examples of catarrhs, both of a simple and a complicated character, resulting from obstinate intermittent fevers. I will detail the curative treatment that I have found the most successful, in speaking of gastric irritation, which has more connexion with the effects of the tonics usually employed in paroxysmal fevers.

CASE XII.—*Chronic catarrh supervening on intermittent fever.*—Fevret, twenty to twenty-two years of age, medium height and size, flabby, and fat, entered the hospital No. 3, at Bruges, during the latter part of Brumaire, an XIII. He had been treated several times, and even cured of the fever; but a slight

infiltration still remained; he was always weak, although he had a good appetite; his complexion was yellowish straw colour, and an expression of languor was discernible in his countenance. He did not complain of his breast; but on visiting him in the evening, I found that he had a somewhat violent and dry cough. I immediately ordered him diuretics and bitters, with such an allowance of food as I thought proportioned to the powers of his stomach.

The sixth of Frimaire, eight days after his admission, and about forty from the commencement of his disease, I found him in a very violent fever, with a hard, strong pulse. In the evening, cerebral symptoms appeared. He suddenly expired in the night, without *rattles*, after having been in a state of violent agitation.

Autopsy.—*Habitude.* The body had lost some of the infiltration, but the cellular tissue was still gelatinous. The muscles were scarcely diminished in size, or less coloured than in health. *Head.* Redness and density of the cerebral substance, but little serosity in the ventricles, much in the occipital fossæ. In each choroid plexus there was a substance about the size of a large filbert, having transparent cells filled with gelatine. *Thorax.* Right lobe almost universally adherent, its parenchyma indurated, and of the consistence of liver throughout three-fourths of its substance. In the centre of this induration I found a full tubercle, and remarked, that the carnification was more solid in its vicinity. The left lobe was still permeable to air, but very much engorged. There was a great effusion of serosity. The heart was healthy. *Abdomen.* Liver slightly enlarged and yellowish; a little serosity in the peritoneum.

Observations.—It may be readily perceived, that in Fevret the lymphatic system was in a depraved condition. The tubercle in the lung is one proof of this, another is afforded by the commencement of the fatty state of the liver.* As it has not been shown that fever invariably produces tubercles, whilst it always engorges the sanguine capillaries of the viscera, the sanguine induration is all that should be directly attributed to it,† and the

* The tubercle was produced by the bronchial phlegmasia, and the fatty state of the liver, by a gastro-enteritis, which I did not observe.

† Fever is here considered as an entity, having an action on the organs. This

tubercle should be regarded as a mark of a predisposition to phthisis, which, perhaps, might eventually have carried off the patient. Nevertheless, this tubercle might have facilitated the inflammatory irritation, which the fever tended to produce, and rendered a catarrh fatal, which otherwise might not have been dangerous. However, the tubercle alone, would never have caused the induration, for experience proves that tubercles inflame the surrounding parenchyma to a very limited extent, and that it is their multiplication which destroys the functions of the organs.*

But let us not anticipate;† and be content with now proving that a protracted and fatal intermittent fever often induces an induration of the lungs.

It was more particularly at Bruges that I met with chronic catarrhs, supervening on intermittent fevers, terminating by death, and without any other morbid appearance, than an induration of the parenchyma, and an exudation of the pleura. I have opened seven of these cases, who died a few days after I took charge of them. I have nothing to say respecting them, except, 1st, that they had experienced several relapses of intermittent fevers, which had always been combated by large doses of the great febrifuge; 2d, that they had been free from fever for a certain time, as fifteen days, a month, &c.; 3d, that they had a dry, nocturnal cough, with a straw-coloured complexion, and a slight tumidity; 4th, that one-half perished suddenly, without fever or any other violent exacerbation, as in the case of Fevret; 5th, that a post mortem examination always showed me induration of the parenchyma, and sometimes inflammation and exudation of the pleura; 6th, that none had tubercles; 7th, that the abdomen presented only an enlargement of the spleen, which, however, was constant; sometimes there was serosity in the peritoneum. In some I also met

language is ontological. The fever, in Fevret, depended on the inflammation of the viscera, that is, on the same cause that produced the tubercles and the fatty state of the liver.

* I was then mistaken as to the effects, as well as to the cause of tubercles. They can never be the cause of the phlegmasia which has produced them; they are even too inert to add to it, except they are converted into cavities communicating with the air.

† My first views respecting the generation of tubercles, will be found in the Chapter on phthisis pulmonalis.

with traces of a slight inflammation of the stomach and colon;* but I do not lay much stress on this, as it was not the principal disorder; hence I only give these seven autopsies as examples of chronic induration. In the following case will be found united almost all the chronic alterations usually produced by intermittent fever.

CASE XIII.—*Chronic inflammmation of the principal viscera, following intermittent fever.*—Mossinot, aged about twenty-four, of a delicate texture, white and soft skin, chesnut hair, rounded form, limbs not muscular, melancholy air, profound and persistent sensibility, had been in the hospital No. 3, at Bruges, in Brumaire, an XIII. for a month and a half, when I took charge of it. I learnt, that he had suffered from a pernicious fever, which was treated by large and long-continued doses of powdered bark. I found him in the following state.

Tongue clean, no bad taste, no pain in the head, no febrile action, *embonpoint* almost natural, but general languor, distaste for all kinds of food, a very uncomfortable sensibility at the epigastrium, a tendency to remain in bed, and to constantly dwell on his complaints.

I first gave him a little bitter wine,† and some demulcent and anodyne juleps in the evening, to induce sleep, of which he stood greatly in need. Two or three days afterwards, finding that he was constipated and had an uneasiness in the abdomen, I made him take a little manna mixed with a purgative syrup In a few days I remarked that he coughed much in the evening; he told me that he had taken a cold, by getting up in consequence of the effects of the purge; that before that he had coughed but little, and then only at night; but he persisted in his statement, that the sensibility of the stomach, and the distaste for food arose immediately after the administration of the bark, and progressed in proportion to the quantity he took, which he stated was considerable. From the 20th of Brumaire to the 18th of Frimaire, the period of his death, his symptoms and my treatment were as follows.

* The stomach and small intestines were not sufficiently examined by me at that time.

† Was there any work at that time, which would have prevented me from committing this as well as the succeeding faults.

He loathed the lightest food that the hospital could afford, and begged each day for a change. It was soon necessary to abandon the use of the wine of bark, and soon afterwards the bitter wine, as they augmented his pain. Nevertheless, as I thought his increasing debility required some tonics, I gave him four or five ounces of sweetened wine, which agreed with him. A combination of theriac and rhubarb, of which he tried some doses, was rather injurious than useful. As he swelled a little, and brown spots became perceptible, I ordered him an anti-scorbutic wine weakened by a solution of gum arabic, but he could not bear it. With the intention of assuaging the cough which harassed him at night, I used ether; this also rendered the epigastrium more painful. Wishing to invite the fluids to the surface, in order to relieve the lungs, which were becoming engorged, I prescribed an infusion of elder with honey in the evening. It caused sweats, which he stated to me weakened without relieving him. I several times applied blisters and sinapisms to his breast and arms, without obtaining any thing beyond a momentary amelioration; and finally, these remedies only tended to torment him. He gradually arrived at such a point as to vomit not only food and irritating drinks, but even any liquid whatever, if he took any quantity; at last, nothing appeared to afford him the least relief, except gummy and mucilaginous pectoral drinks with a few drops of laudanum, of which two or three spoonfuls only were given at a time.

A smile never appeared on his lips, and I never observed that he entertained a shadow of hope; the thoughts of his disease had absorbed all his faculties, and had rendered him so misanthropical that I was obliged to separate him from other patients, as they were rendered melancholy by his conversation.

About the 14th Frimaire his face tumefied and became yellowish in less than twenty-four hours. A slight degree of leucophlegmasia appeared in all the subcutaneous tissue, and there was in that of the breast and right arm a slight tumefaction, which was painful to the touch, with a brownish shade of the skin, and a sort of softness most perceptible at the centre. Other large, brownish, but not tumefied spots were also observable on other regions of the body. The cough increased. Mossinot began to complain of a feeling of fullness and suffocation in the hypochondria, as well as in the epigastrium; he would now eat only a few spoonfuls of panada,

and take anodyne juleps, and a small quantity of white wine sweetened.

On the 18th he was obliged to sit up to respire, although his chest did not appear to heave, and his respiration was not quickened. Whilst one of the nurses was raising him, to add to the thickness of his pillow, he calmly expired, about the end of the third month.

Autopsy.—*Habitude.* Pale and *exsanguine* appearance, muscles pale, with their fasciculi separated, tissue a little infiltrated. *Thorax. Left side.* Lemon-coloured serosity in considerable quantity; the pleura sound; the anterior and superior portion of the parenchyma indurated, and in some places reduced to a jelly. In the *right cavity,* a lemon-coloured serosity; adhesion of the external and of the whole posterior part of the lung; this adhesion was on the anterior side formed of a tolerably solid ligamentous production, and on the posterior, by a cellular membrane which could be easily torn; almost the whole of the parenchyma was indurated to the consistence of liver. *Heart.* Pericardium filled with a lemon-coloured serosity; the heart flaccid, and containing gelatinous, and but slightly adherent concretions. *Abdomen.* Stomach contracted to the size of an intestine, thick and resisting; its serous membrane healthy, its mucous coat very red, thickened, and forming numerous solid folds. On dividing it, it was found to be spongy and disorganized. This disposition, which was very remarkable at the larger end, insensibly disappeared near the orifices. The liver was a little yellowish, but not enlarged; the spleen was very large, and its parenchyma in a state of jelly; there was much lemon-coloured serosity in the peritoneum; and the portion of this membrane which covers the intestines and forms the mesentery was of a brownish colour, and studded with black spots of the size of ordinary petechiæ. Two of them situated on the colon were as large as a centime.* On dividing these spots I found that they were gangrenous eschars.

The tumour felt on the cartilaginous portion of the left true ribs, was formed by a swelling of the fleshy substance of the pectoralis major, which was blackish, disorganized, and contained clots of blood mingled with its divided fibres. The tumour on the left arm consisted of a similar swelling of the brachialis ex-

* A centime is about the size of a half dime piece.—Trans.

ternus; but on dividing it a small abscess containing a white and unctuous pus was discovered. All the muscles presented every where else unequivocal traces of inflammation, but of a brown inflammation* with flaccidity and decomposition of the tissues, agreeing with the general state of the body.

Observations.—In this case it is impossible not to perceive a phlogosis of the stomach, provoked by the bark, and kept up by all the tonics which had been administered to relieve the feeling of debility and depression of spirits which this species of irritation rarely fails to produce. This phlogosis augmented the general irritability, and all the other viscera were found to inflame with astonishing facility from the action of the most moderate stimulus. But the phlogosis had scarcely commenced before the tissue ruptured, and lost its organization and life. In this manner the induration of the lungs took place; and for this reason pressure of external bodies, or the simple effort of their contraction, was sufficient to inflame and disorganize the muscles. It appears to me, that in this subject the capillaries already relaxed and disposed to scurvy were suddenly thrown into a state of violent agitation from an impulse tending to inflame them. What could result from this but the most prompt and fatal disorganization?

This case belongs to an extensive class, which ought to prove to us that debility does not always require stimulants, especially proportionate to its degree, and that every phlogosis does not demand extremely debilitating remedies; but this proposition will develope itself as we proceed. Before going further, I wish to attract the attention of physicians for a moment to a particular disposition of the body which specially exposes those endowed with it to engorgement and sanguine induration of the lungs, whenever they have the misfortune to be attacked with intermittent fever; we also find in it a proof of that accumulation of blood in the capillaries of the intestines, which, in common with the ancients, we attribute to febrile chills in general. I would now speak of the relative debility of the centre of the circulation.

There is nothing more common in medical practice than to be consulted by persons who are habitually affected with laborious respiration, difficulty in walking, particularly when they are

* This brown inflammation had been red in the beginning.

obliged to ascend, and who very readily take cold. Those who are subject to these complaints, if they cannot be attributed to remains of an imperfectly cured disease of the breast, or to some other evident cause, should be considered as affected with an incurable malformation. This consists in an aneurismal or varicose disposition of the pectoral organs. It is not always easy to distinguish one from the other, the following data may however be useful.

These two dispositions appertain to individuals in whom the circulatory tree is large, that is, who habitually have very full and highly excited sanguine vessels. The aneurismal structure is wholly dependent on the heart; it is sufficient for this organ to possess a considerable bulk and thickness in relation to the rest of the body to induce it. This state is recognisable from the strength; hardness and frequency of the pulse; by the vivacity of the colour; by the activity of the functions; the resistance to cold, and the quickness and energy of the muscular contractions. Individuals thus formed have genitals of a surprising activity; but if they are indefatigable in bed, the contrary is the case in laborious exercises. Although their muscles are strongly developed, they are seen panting as soon as they hasten their steps, and they complain of palpitations.*

Let not those who recognise themselves in this sketch be alarmed. If they be moderate in all their passions, especially in anger and love; if they avoid excess in dancing, and all violent exertions, they may pursue a long and happy career. I am convinced of this, from the examination of a multitude of individuals of all ages, both in the army and in society, who were thus formed; but they ought to dread intermittent fever, as I shall presently show.

The varicose disposition, which was for a long time confounded with the preceding, nevertheless differs from it essentially. The disease described by Professor Corvisart, under the name of *passive* aneurism, may most generally be referred to it; but I am convinced that there exists an innate disposition which produces all the results of this aneurism. The individuals in whom it

* This state is at present designated by the words *hypertrophy of the heart.* Much attention has been paid to the form which is here depicted since the first edition of this work.

occurs are usually weaker than those of whom I have just spoken. They may also be endowed with a very powerful muscular system; but we very often observe that they have a large heart, which pulsates in a flaccid manner, and with a kind of murmur and thrill at irregular intervals; a soft and compressible pulse, which does not correspond to the fullness of the central pulsation; a colour which verges on violet, and a protracted and sibilant respiration. Those persons always dilate their thorax greatly during inspiration; they are not possessed of as active passions or movements as the preceding; they are less adapted for marching, and they have the peculiarity of easily taking cold, and have much difficulty in respiring in crowded places, or confined rooms. They are readily attacked with asthma and suffocation.*

From these symptoms we are not only enabled to recognise the disproportionate size of the auricles of the heart, but also the varicose state of all the venous system of the large viscera.† Several post mortem examinations have demonstrated to me that in men afflicted with these infirmities, the left ventricle does not dilate, although the auricle of that side was very often enlarged. In most cases, I only found a dilatation of the right auricle, with a certain roundness in the form of the heart, depending on enlargement of the right ventricle, with thinness of its parietes.

I should also notice, that if all of the above-mentioned symptoms are met with, the want of enlargement of the heart and absence of palpitations ought not to withdraw the attention from the varicose diathesis, if the other signs exist; for the size of the thorax is sometimes so great, that the heart never touches its parietes. It should also be borne in mind, that these pulsations are no longer to be perceived when the subject has lost much of his strength. Moreover, the varicose disposition may be limited to the venous branches distributed through the parenchyma of the lungs. I have often found the lungs varicose, pouring out great quantities of blood when a scalpel is plunged into them, in subjects who died in what is called the *asthmatic state,* although

* We may here recognise an aneurism already formed; it but too often succeeds to hypertrophy; a thousand irritating causes augment the nutrition of the heart, and its pulsations become more vigorous; but in consequence of being inundated with fluids, its tissue softens, becomes weakened, the systole loses its force, and the aneurism is completed.

† This state is then consecutive.

there was no dilatation of either the ventricles or auricles, and though the parenchyma was every where permeable to the air.*

I have now given the isolated signs of a disposition to aneurism of the heart, and of that to varices in the auricles and principal veins. They may be thus recognised in persons who are considered as in a state of perfect health; but sometimes they may be confounded together, from a combination of the two diatheses. The first, or the aneurismal, in particular, seldom fails to become complicated with the second, when it has progressed to a certain degree.

Of all the causes that may induce this tendency to enlargement in the ventricles, and a consequent destruction of all equilibrium, intermittent fevers are the most powerful. But when they have acted for a long time, the symptoms of embarrassment in the circulation, which we have assigned to varices, become very unequivocal. It may be said, that the ventricles, large as they may be, cannot suffice for the passage of the whole mass of the circulation. If we seek for the cause, we will find it in the excess of their proper dilatation, which, as we have before explained, is always augmented by the accumulation of fluids in the viscera during the period of the chill, or by the obstacle which is opposed to the progress of the blood from the ventricles by the contraction of the capillaries of the circumference.

It appears to me that the contraction always being in proportion to the vitality of the capillaries which experience it; it ought to be principally seated in the arterial capillaries, I mean in that portion of the circulatory circle in which the canal enjoys the greatest vital activity; for as soon as the capillary enlarges itself to become venous, it loses much of this activity. If this be the case, the capillaries of the viscera ought to contract as well as those of the external parts.

Thus, by the effect of a chill, the greater part of the blood would be suddenly forced into the venous system, which would experience a dangerous distention, whilst the blood of the arterial system would be violently pressed between two very powerful agents, on the one side by the convulsed capillaries which refuse any passage to it, and on the other by the ventricles, which would

* If there be not an aneurism in these cases, there at least always exists some obstacle to the course of the blood.

be obliged to augment in energy in order to keep up the circulation. I now ask whether it be surprising, that a feeble and aneurismal heart should finally lose its requisite power, from a repetition of paroxysms; and that the internal veins, already disposed to varices,* should become so much weakened as to give rise to continual engorgements.

The irregularity of the circulation necessarily resulting from this, is neither injurious to digestion nor to the absorption of chyle. Hence the individual always has full vessels. Nevertheless, it militates against a perfect assimilation, it overcomes the resistance of the venous capillaries and general absorbents; and hence arises universal dropsy, the mechanism of which has been so ably developed by Professor Corvisart. But all this demands time, and aneurismatic fever patients often die very suddenly.

Do not the concretions concur in producing this? I know that the fever without their aid, may in a few moments surcharge the cavities of the heart with so much blood as to overwhelm and paralyse them; that the stagnation which results may be injurious to the brain, and manifest its influence by the production of various forms of apoplexy. But have not the concretions in the ventricles a considerable part in these phenomena? I am indebted for this idea to the learned professor who has rendered us so familiar with the diseases of the heart. I have often heard Professor Corvisart observe, that certain concretions in the heart were too highly organized for us to refuse to believe, that they had existed anterior to the death.

In afterwards reasoning on what I had observed, I came to this conclusion; almost all the men who died after protracted intermittent fevers, in a swelled state, and who during life presented rather the symptoms of what is termed *dropsy of the chest*, than those of a phlogosis of this cavity, had their hearts rounded and often entirely obstructed by highly organized concretions; during the last hours of their life it was requisite, for the maintenance of the circulation, that the blood should pass on one side or other of the concreted mass. I am the more inclined to this opinion, from never having seen well-organized white concretions

* I have met with the veins of the pancreas in an enormously varicose condition after intermittent irritations.

in subjects who did not suffer from difficult respiration until in the last struggle; in them the heart presented red clots only in which I perceived but a commencement of the fibrous and cellular state. I cannot, therefore, refuse to believe that it is possible to live for some days with the heart half obstructed by concretions.

It is evident that it is impossible precisely to determine for what length of time this state is compatible with existence. Having closely observed my old fever patients, in whom the cough and dyspnœa without heat, had been successively augmented by a recurrence of paroxysms; having felt their heart during the moments of their most violent agonies, I have found that this organ experienced only slight thrills, that it did not strike the sides in an energetic manner, that its volume appeared to undergo but little variation; I also remarked a small feeble pulse, and an artery whose size and form were always the same. From these symptoms I convinced myself of the embarrassment of the circulation, arising from a weakening of the heart, and have thought that the formation of concretions contributed in a great degree to suffocations and dropsy.

Sometimes the difficulty of feeling the pulsations deprived me of the most certain signs. When the subjects have a very large thorax, when we are unable to observe them until the thickness of the integuments has been augmented by œdema, we are reduced to conjectures as to the cause of the dyspnœa; we are then obliged to recur to the symptoms of catarrhal phlogosis: if they do not exist, if those of chronic pleurisy are equally wanting in a patient who has been tormented by a protracted intermittent fever; if the languor of the functions cannot be attributed to an inflammation of the gastric organs; if, above all, the respiration be heightened, tedious, and asthmatic, it may be presumed that the fever has destroyed the elasticity of the organs, and produced an *aneurismo-varicose diathesis.**

But, if such patients die, the heart is generally found rounded and filled with white organized clots, or the lungs varicose and very full of blood.

I subjoin one of the cases of this kind which most strongly attracted my attention.

* I now consider these diseases as aneurisms already formed.

CASE XIV.—*Remittent quotidio-tertian fever, with aneurism of the heart.*—Brossard, aged twenty-four, very light hair, high colour, white skin, large chest, body fleshy and loaded with much cellular tissue, entered the hospital of Udine on the 22d of October, 1806, having been attacked with remittent fever four days previously. As the chill was long and violent, I considered it as dangerous. The robust appearance of the patient not being confirmed by the strength of his pulse, I thought it right to dispense with sanguine evacuations, and had immediate recourse to preparations of opium. These were the only remedies which I then found successful, the disposition to gastric phlogosis being common to almost all the fever patients.*

The paroxysms gradually diminished. About the eighth day of the treatment, they took place every third day only, and the chill had lost its violence. He remained twelve days in this state, giving hopes of a cure, and having a voracious appetite.

Nevertheless the condition of the thorax alarmed me. I continually observed a deep, bubbling or *sibilant* cough, with redness, lividity, and swelling of the face; but little expectoration; pulse habitually soft, with scarcely any change in its form, and giving no evidence of an active systole. In the evening it was hard, and the skin was somewhat hot. On the hand being pressed on the region of the heart, full but deep pulsations of that organ could be felt. On the morning of the twenty-seventh day, I found Brossard with a heightened, accelerated, rattling, convulsive respiration, the face tumefied and violet, the pulse hard and frequent, and the skin burning. Although I foresaw the cause of his death, I did not, I must confess, dare to bleed him; I feared that a loss of blood would only hasten the paralysis of the heart. I contented myself with the application of several blisters, at first on the thorax, and afterwards on the thighs. Etherized potions and the kermes were prescribed, both as antispasmodics and as evacuants of mucosities, and to invite serous evacuations;† in fact the treatment of that chronic catarrh which is called *humoral.* He expired on the twenty-ninth day, after a very hard struggle.

AUTOPSY.—*Habitude.* Slight general infiltration; muscles large, not in the least emaciated. *Head.* All parts natural.

* I should now apply leeches to the epigastrium.

† I should now strictly avoid the use of such means.

Thorax. Thoracic cavity very large; right lung swelled, very much engorged, pouring out much bright red blood on being cut into, and every where adherent by short cellular productions which were highly organized. It was, however, every where somewhat crepitating; left lung free, less engorged. *Heart.* Voluminous, rounded, having the two auricles, and especially the right, dilated and filled, as well as the ventricles, with highly organized white concretions, resembling the pulp of an orange, which kept the four cavities in a state of permanent dilatation. These concretions extended into all the large vessels; but they terminated in a red colour; the right cavities were much larger than the left. *Abdomen.* Gastric mucous membrane somewhat rose coloured. Some isolated inflamed points throughout the whole length of the intestinal canal.* Liver very voluminous and sanguine; spleen small.

Observations.—I have selected this example from many others, because from having been instructed by those that I had formerly been struck with, I was enabled to recognise the disease before the catastrophe, to observe it with the intention of ascertaining every thing that was owing to the aneurism, and moreover because it was not complicated; for the gastro-intestinal redness was not the cause of death.†

I will not prolong this article by other cases of aneurisms complicated with fever, but will relate another fact, which tends to prove that the chill, in whatever manner it acts, engorges the viscera, if the force of reaction be languid.

A soldier in the flower of his age, of a truly athletic conformation, entered the hospital of Bruck, in Styria, rather to rest himself than to be cured. I discovered that he was affected with aneurism of the heart, but the healthy state of his functions induced me to think that the disease was not far advanced. It appeared to me that this man had still a long time to live, especially if he were relieved from the fatigues of a military life.

The hospital was evacuated. This patient, lying in a cart, was exposed for several successive days to the impression of a humid and frosty air in the midst of mountains, and in roads covered

* A redness from passive engorgement had been general in the mucous membrane. There was, therefore, gastritis.

† But it concurred in it.

with snow. He perceived his respiration become gradually embarrassed. When he arrived at Laybach, he had a violent orthopnœa, his face was violet coloured, he coughed without intermission, spit great quantities of blood, and appeared to be deprived of all energy. He died notwithstanding all the revulsive excitants that I could employ. Bleeding, which, used at the proper time, would have relieved him, was not tried, as he was already almost in a state of asphyxia, when I was able to visit the newly-arrived patients.

The examination of his body showed me a large heart, filled with semi-organized clots; lungs much engorged, without being hepatized, and all the viscera appeared to be extraordinarily injected, like sponges filled with blood. Shall I hazard too much in asserting that this man fell a victim to the same morbid conditions as the fever patient whose case has just been given.

It can no longer be denied that *aneurismo-varicose** subjects, are among the number of those whom intermittent fever can the most readily destroy, by engorgement of the large viscera, whether it take place rapidly or slowly; but they are not the only victims. Some patients, endowed with a perfect equilibrium, are so exhausted by the recurrence of the paroxysms, that they die, and on an examination of their bodies, no phlogosis or dilatation of the centre of circulation is discernible. The capillaries of the viscera alone appear to have lost their energy. I might give many proofs of this.† In other subjects, there is no dilatation in the internal sanguine capillary system, to be discovered; and it can only be said that death was entirely owing to exhaustion. I subjoin an example, as a very rare instance, to elucidate more fully the cases of complications, which, notwithstanding the opinion of many physicians, are the most common, especially in countries subject to sudden and frequent atmospheric changes.

CASE XV.—*Quotidian fever, general dropsy from exhaustion.*—Allain, aged thirty years, and like the preceding, a German, with fleshy limbs, chesnut hair, white skin, large, but fat and flabby chest, and having a physiognomy which indicated a premature decay of his constitution, had been affected for about a month with a

* That is, really aneurismatic.

† These proofs do not now appear to be undeniable. I was not sufficiently acquainted at that time with the traces of phlegmasiæ.

quotidian intermittent fever, when I received him into the hospital at Udine, in December, 1806, in consequence of the evacuation of another hospital. I first observed in him a cough, but without expectoration; dyspnœa; but nothing remarkable about the region of the heart; want of appetite, a slight diarrhœa, and small degree of leucophlegmasia; complexion of a pale yellow colour, nearly approaching that of straw. He did not sleep, and uttered continual complaints; in fact he appeared in a state of general suffering, but did not designate any one part as more painful than the others.

I required another examination to form a diagnosis, which I accomplished without difficulty. A light diet, and wine of opium, with demulcent drinks, quickly alleviated all this collection of pains. After that, Allain did not know of what to complain, but he was feeble, and the œdema did not disappear, although I endeavoured to induce absorption by the moderate use of squills and all the excitants, as well internally as externally. This treatment carried off the fever. Allain appeared to me in a fair way to recover, when one morning, about the thirty-first day, I found him very much jaundiced.

I could only persist in my plan of treatment, but added a blister to the region of the liver.

Nevertheless, the patient was not relieved; his uneasiness slightly returned; from time to time he had recurrences of febrile paroxysms, which were remarkable for the intensity of the chill. Ascites was developed, the limbs swelled, the urine was almost wanting. The forty-fifth day he had a violent chill, which lasted more than twelve hours, afterwards a marked fever, then a return of the chill, total suppression of urine, from the enormous infiltration of the prepuce, and terrible uneasiness. In the evening I had his penis punctured in many places, which permitted the escape of much urine, and procured a complete quiet for the remainder of the night, during which he calmly finished his existence.

Autopsy.—The three cavities offered no trace of phlogosis. The heart was small, the liver was rather under size, the gall bladder much distended, the stomach very large, some very small dry tubercles in the superior part of the lungs, the parenchyma healthy except a little induration around some of the tubercles.

The pectoral cavity, although very large, left but a small space for the lungs, from the great accumulation of serosity in the abdomen.*

Observations.—Without doubt the diminished size of the liver was owing to this violent pressure. The amplitude of the stomach made me suspect that the patient had not been temperate. The inquiries which I made, convinced me that after the jaundice he had procured food as often as he could; he was led to it from his appetite, and besides he hoped to gain strength by this means.

It is to the gluttony of this patient that must be attributed the violence of anxiety, the irregular paroxysms of fever, the progress of the œdema, and certain returns of diarrhœa, which ceased when he was temperate.

I have always remarked, that diarrhœa not dependent on phlogosis of the colon, yielded without difficulty to diet, aided by a tonic and anodyne potion, and that the partial pains and general uneasiness disappeared at the same time, if they were only caused by debility. This ought not to surprise us; we know that a superabundant and ill-elaborated chyle is as harassing to the interior of our tissues, as imperfectly digested food is to the papillary surface of the alimentary canal.

Hence, we have a means of presuming the absence of a local affection in all analogous cases; a means which is doubtless applicable to many others; this is a rigid diet, and negative remedies, administered internally however in such a way as not to cause that peculiar uneasiness which arises from debility and relaxation. When a local pain continues to disturb the economy notwithstanding these precautions, I say that an action analogous to phlogosis exists in the part.†

When quiet is restored by this method, we should observe whether it lasts for some time, and recal to mind the symptoms of the different chronic diseases. If these are not perceptible, and the quiet continues until the moment of the impression of a new stimulus which can be appreciated, as food, medicines, or the pas-

* This man, who then appeared to me without phlegmasia, had a chronic pneumonia and gastro-enteritis; but I was not accustomed to post mortem examinations, or to comparisons between the different degrees of duration of phlegmasiæ.

† I began to have an idea of the importance of irritation in pathology.

sions, there is every reason to believe that the patient whom we see affected with a chronic disease owes it solely to an exhaustion of his forces.*

I have thought that it would be useful to offer a few remarks upon the absence of some local affections, to present a knowledge of which is the object of this work, in order to signalize their presence in a clearer manner; but I must at present occupy myself with collecting the cases of chronic sanguine irritations of the pulmonary parenchyma, in order to arrive at the general history of this disease.

The majority of the cases reported in this chapter offer examples of a red induration of the pulmonary substance. This induration was always the effect of a point of irritation which existed for a longer or shorter period. This point of irritation arose in the capillaries of the mucous membrane, but in two different modes; sometimes the whole tissue of this membrane was attacked at the same time. We have seen but few examples of this commencement of it, as we have not dwelt on the study of acute peripneumony: on the contrary, we have observed, that originating in the capillaries of the mucous glands, the point of irritation is but too often propagated, first to the whole membrane, from whence it afterwards invades the parenchyma. When it has reached its last stage, it has transformed the whole lung into a red mass, composed as far as our senses will enable us to judge, of vessels of all kinds filled with a coagulated blood. Death does not take place until after some time, during which several disorders, fundamentally the same, may exist. We must now present a view of these disorders, that the physician who still does not understand the nature of the pulmonary organ, may, from their symptoms, be able to refer to our observations, and recognise the nature of the pulmonary lesion.

* All this does not exclude, but supposes irritation of important organs.

GENERAL HISTORY OF CATARRH AND PNEUMONIA.

Etiology and Development.

As every peripneumony may pass into the chronic state, and as all catarrhs may be sufficiently exasperated to degenerate into peripneumony, the causes which predispose to these two phlegmasiæ, also expose the patients to chronic induration; but we should not on that account confound them with those which favour this induration in a direct manner, and it is these which must be investigated.

It appears from my observations, that predisposition to chronic induration of the lungs principally consists in debility of the general capillary circulation;* in the facility with which the perspiratory function of the skin is suppressed, and in a certain varico-aneurismal disposition of the tissue of the lungs and of the large vessels, which is marked by cough and an habitual dyspnœa with venous colouration of the face. It seems to me that the best formed men may become victims to this disease, when, in a state of debility, they are attacked with an inflammation of the pulmonary organ. All diseases may concur with an abuse of hygienic measures to establish this debility, and when it exists, the causes of inflammation act with more certainty.

These causes are very numerous; I divide them into two series:—1st. The first are the immediate causes, or those which excite the lungs by a stimulus directed on its tissue; here may be ranged: *α, all external influences, or mechanical or chemical irritations, whose source is foreign to the individual,* such as blows, falls, the inspiration of noxious gases, foreign bodies, heated air, &c.: *β, all direct mechanical or chemical irritations, whose source is in the individual,* as excessive exercise, violent cries, suspension of the respiration during exertions, &c. All these causes exercise on the tissue of the lungs, and principally on the mucous membrane, which is the most excitable portion of it, an immediate, irritating action, which tends in a manifest manner to induce and keep up phlogosis.

* In fact, I continue to observe that debility renders the destruction of the equilibrium much easier, and the phlegmasiæ more readily produced.

2d. There are others whose primary action is not exercised on the lungs, but rather on the organs which have an active correspondence with them. The lungs are sympathetically forced as if to supply the place of the functions of another apparatus, to an extraordinary action, which, from its excess, degenerates into phlogosis.

Let us render this assertion more positive, by studying the effects of cold on the organ of respiration.

Whenever the temperature of the air or water surrounding a person, who is commonly bathed in these fluids, becomes diminished, the skin is chilled, his cutaneous evacuations diminish, the blood is in less quantity in the cutaneous organ, in the cellular tissue, and in the limbs; it abounds in the pulmonary mucous membrane, as is demonstrated by a sensation of fulness in the chest during inspiration; the exhalation and mucous secretion are augmented in it. If after the cessation of the cause, the equilibrium be not restored, the individual has a morbid irritation in the bronchial membrane.

If this irritation give no other indication of its existence than a vice of the mucous secretion, it is called a *catarrh;* if it be demonstrated by a violent disorder in the circulation, joined to the alteration of the mucous secretion, it is termed *pneumonia.*

The diminution of heat in the medium in which man exists, is not the only cause which may sympathetically give such a direction to the organic actions as will produce pulmonary inflammation. The chill at the commencement of a continued fever; the same chill recurring at different intervals, according to the type, in intermittent fevers; that caused by the impression of a cold drink on the stomach; that of terror and of all passions which are of sufficient violence to produce it; in short, every thing that occasions a sensation of cold in the skin, may induce that action in the capillaries of the bronchial mucous membrane which constitutes inflammation. Indeed, persons often take cold or become pneumonic without having experienced the sensation of cold; it suffices that the skin should have been partially deprived of its heat, *(decalorisée,)* and the external capillaries contracted. An agreeable freshness of the air has often occasioned a fatal peripneumony.

I have hitherto advanced nothing, of which I do not possess examples. How often have I not seen patients cough for the

first time after a febrile chill! I have known many sensitive persons who have caught cold from the effects of fear. Any one who observes mankind attentively, will soon verify all that I have here said.

The causes of acute inflammation being known, let us observe its phenomena, that we may learn why it becomes chronic.

When a pulmonary inflammation has not been of sufficient intensity to terminate by death, the patient runs several chances. 1st. If he be robust, and his organs be in a state of equilibrium, he may recover, on a cessation of the cause; this may even take place when the cause is persistent, because he becomes habituated to the impression of cold, which finally no longer deranges his functions. The faculty of habituating himself to impressions, is one of the principal privileges of man; if he did not enjoy it, an army would soon be destroyed. 2d. The second chance is to remain in the chronic state, which may be kept up as follows:—α, by a purulent abscess, (I have no example of this;*) β, by tubercles, (I will speak of these elsewhere;) γ, by a red induration, which extends from a central nucleus to the circumference, with or without alteration in the serous membrane. Let us endeavour to correctly assign the causes of this propagation; as the curative doctrine is absolutely based on a proper knowledge of them.

We have said that the cause of the chronic sanguine induration was cold; but this is not enough, the circumstances which induce a continuance of the action of this cold must be taken into view.

In the civil state, individuals can obtain hygienic assistance, which favours a prompt and happy termination of pulmonary catarrhs; hence catarrh does not become fatal except to persons of a phthisical constitution; I am ignorant whether it often terminates by chronic induration, not being acquainted with any work *ex professo* on this subject. In the military condition, the existence of man is widely different; soldiers in general are not sufficiently clothed; they sleep two together, and do not enter a hospital until they can no longer perform their duties. When, therefore, a man whose lungs are weak, has contracted a catarrh, the cold, to which he is continually exposed, from a thousand causes, is sufficient to renew it; but it is the cold of the night which more especially perpetuates catarrhs. It is impossible for two men sleep-

* I now possess some.

ing in one barrack bed, to be always well covered; the scantiness of the bed-clothes, and the narrowness of the beds, cause one of them to spend a part of the night but half covered, and nothing causes catarrhs so readily as partial cold during sleep.

When soldiers are in hospital, they are exposed to cold on rising to satisfy the necessities of nature, from the want of sufficient comforts;* from their vicinity to windows, which are necessarily often opened to air the wards; and finally, they are exposed to it, from turning in bed, where they remain all the day without dressing themselves, and a simple shirt is never sufficient during the winter for a man whose lungs are delicate.

When the patient is discharged, the causes which first induced his disease again assume their sway.

But if a soldier thus exposed to relapses, be obliged to make a forced march, the first cold which attacks him when sleeping, will engorge his lungs the more readily, as the expansive force is exhausted by the fatigue of the march. Wo to him, who, after a laborious march, is chilled by a cold moisture during the moments of his repose! Instead of deriving new strength from it, the germ of death will be implanted in him.

It was thus, that the chronic catarrhs, whose fatal termination we have already given, were kept up; it was from having been thus exposed to vicissitudes, that the individuals who died of the hospital fever during the German campaign of 1806, perished with induration of the lungs.

It also appears to me extremely probable, that the termination by induration is favoured by debility. The most robust were those who were cured with the greatest ease; those of a sanguine temperament were more promptly relieved of the most violent symptoms, and were less liable to relapses; the non-commissioned officers rarely pined away with catarrh, except they were phthisical. Add to this, that in civil life, the disease of which we speak is rarer, and it must be allowed that an abundant and rich diet tends equally with heat to diminish the frequency and danger of catarrh, as well as of peripneumony.

All the other causes, whether mediate or immediate, that induce phlogosis in the tissue of the lungs, may also keep it up and give rise to the chronic induration which I designate by the ge-

* We are here speaking of temporary hospitals.

neral name of chronic pulmonary catarrh, whatever may be the violence of the phlegmasia at its outset.*

Progress and Termination of Chronic Catarrh.

Chronic induration of the pulmonary parenchyma takes place during a state of quiet of the great organic actions. But every irritating cause may induce a renewal of the first storm. After seven, twelve, or fourteen days of fever, the circulation becomes calm, the heat is natural, the appetite is regained, the colour improves, and there is every appearance of a speedy return of strength. Nothing remains but a cough, slightly troublesome during the day, but exasperated at night. Generally it is dry and harsh; sometimes, however, there is much expectoration. In this state the patient attends to his business during a fortnight or a month. But finally, in considering his situation, he perceives that he loses strength instead of acquiring it, and that his respiration becomes difficult in ascending heights. If he come under the cognisance of a physician, he will remark a slight acceleration of pulse and redness of the cheeks towards evening; the complexion insensibly becomes pale and of a yellowish straw colour, the face swells, the feet become œdematous, and the forces diminish. All these symptoms go on increasing, especially the cough, which renders the nights very harassing.†

Nevertheless the patient never loses hope, and, as on approaching his end, his weakness no longer permits him to take his usual quantity of exercise or food, he is calm, and without pain. Finally, in about six weeks, two, three, or even four months, he suddenly becomes infiltrated and immediately perishes. His death occurs in two ways; 1st, if he has languished for a long time, that is, if he has restricted himself to a sober and quiet life, he expires suddenly and almost without a struggle; 2d, if he has committed some intemperance or indiscretions, he often dies in a violent febrile action, with a return of the first symptoms or of a peripneumony.

Irregularities.—They arise from the mode of life. This state of slow, apyretic decay may be interrupted by renewals of the acute stage; relapses, the character of which is that they may be

* Whenever the traces of phlegmasia extend beyond the mucous membrane, there is pneumonia, but it is almost always an effect of catarrh.

† The proof derived from percussion indicates the pneumonia by a dull sound, or *vice versa.*

dissipated by those means called *antiphlogistic*. It should be remarked that each return of the excitement leaves the patient feebler than before, and the more of them he experiences, the sooner will the disease terminate. If percussion be made on the breast, an obtuse sound will be perceptible over the indurated spot; this experiment should be especially made on the posterior part of the thorax.

Complications.—These may occur at the commencement and during the progress of the catarrh, or even accompany it throughout its whole course.

1st. *In the commencement.*—It is often either a continued or an intermittent fever. When the catarrh is derived from it,* it does not commence in the manner we have indicated; it cannot be recognised except by the symptoms of the chronic state.

2d. *During the progress.*—A continued fever, supervening during the existence of a chronic catarrh, particularly at a somewhat advanced stage of it, may terminate alone, and permit this disease to continue its march; if it attack the patient at a later period, when he is already enfeebled, it inevitably kills him, and thus cuts short the duration of the catarrh. The same takes place as regards the abdominal inflammations, if they do not assume the chronic character of the catarrh during the remainder of the patient's life, which they necessarily abridge. The intermittent fever which complicates a chronic catarrh, renders it mortal, but it disappears some time before death.

3d. *During the whole course of the disease.*—It is only chronic inflammations of other viscera, which, sometimes originating under the influence of the same causes, can progress simultaneously and terminate by the entire destruction of the organism.

Treatment.

In giving the history of chronic catarrh, we have noticed one of the most powerful causes of the destruction of our armies in northern countries. It is painful for us to be obliged to avow that we have found a very great majority of these diseases incurable, when they had continued beyond a certain period. We have succeeded in a very small proportion only in triumphing over

* If the fever does not depend on the catarrh, it depends on some other phlegmasia, which may precede and even provoke it sympathetically; finally, it may yield and leave it uncomplicated.

a really chronic catarrh, especially if there had been some recurrences of febrile action, as we were never able to withdraw the patients from the impression of cold. Scarcely had the heat become more permanent, and circumstances permitted us to procure food and wine of a better quality for the sick, and drier and closer hospitals, than we have seen a great number of subjects affected with catarrhs, which appeared to us to be already in a chronic state, perfectly recover. We then lost such only as were already infiltrated, and those in whom a latent tuberculous germ developed phthisis pulmonalis.

What incentives for daring to hope that the number of chronic catarrhs and peripneumonies may be diminished by a rational treatment during their acute state! Some cases even authorize us to think, that if the induration cannot be checked and dissipated, at least that there are certain very alarming chronic catarrhs which may be advantageously modified by dietetic and pharmaceutic means.

I will first notice the treatment in the acute stage; then in proposing the remedies which appear to me most appropriate to confirmed chronic catarrh, I will detail cures of obstinate coughs, the cause of which appeared to me to be most analogous to the chronic indurations of which I have given the history.

Treatment of acute phlogosis of the mucous membrane and of the pulmonary parenchyma.—To prevent an acute catarrh from becoming chronic, is to cure the catarrh. It is the same with peripneumony. Although no subject has more strongly attracted the attention of physicians than this treatment, we will endeavour to reduce it to fundamental principles.

The general indications which are to be fulfilled at the commencement of sanguine inflammations of the pulmonary organs, are to moderate the excitement of the sanguineous system, if it be very great, by local and general blood-letting, by mucilaginous and aqueous drinks, slightly acidulated, and by abstinence from food; to gently aid transpiration, and to direct the actions towards the exterior by topical emollients during the violence of the erethism, by rubefacients and blisters when the vascular reaction and the activity of the nervous system diminish; such are the general indications, to be fulfilled in the commencement of sanguine inflammations of the pulmonary organs.

As soon as the white and thick expectoration or the excretion discharged into the bronchiæ announces resolution, tonics are to be combined with the emollients; food may be permitted, and the patient is to be gradually restored to his ordinary mode of life.*

The majority of inflammations of the breast quietly go on to resolution, and are cured by simple and mild remedies. But when the patient is in a state of exhaustion, after the disappearance of the reaction, the resolutive thick expectoration does not take place, or is too much protracted. Thus, the chronic state may occur under two forms; 1st, with dry cough, or thin, transparent sputa; 2d, with an abundant, thick, opaque, mucous expectoration.

When it is feared that the debility will not induce either of these states, the patients are to be suitably nourished, taking care that they eat but little in the evening; claret, and certain tonic preparations, are to be given: the decoction of cinchona weakened with mucilage has always appeared to me better than any other.†

At the same time that we endeavour to maintain the forces in a just equilibrium, care must be taken to remove all impressions that may induce a chill or contraction of the external parts, a spasm of the skin, or of the muscles and viscera; for it often happens that a pulmonary catarrh which has almost disappeared is renewed by a continuation of the cause that produced it; thus, 1st, by an apartment properly heated, in which the surrounding atmosphere acquires a temperature favourable to cutaneous evacuations; 2d, by warm clothing, and especially by a flannel jacket, the skin will be kept in a state of moderate excitement; light frictions are also strongly indicated, but care must be taken that the patient does not afterwards take cold; 3d, by a gay and happy state of mind, and by preventing all violent excitement, whether of a moral or physical character, as running, &c. the spasm of the external parts, and concentrations on the viscera, which are caused by innate actions of the individual, and are in-

* The pharmaceutic tonics are hurtful. I now find it advantageous to abstain from them. Animal food, especially broth, and a little wine, are sufficient for a prompt restoration of the strength, whilst bark and the bitters may produce a gastritis, or occasion a return of the pectoral phlegmasia.

† Because it is less irritating; but since I have dared to abstain from it, I have obtained a still more marked success.

dependent of the *circumfusa*, will be prevented. It is always imprudent to endeavour to excite sweat by perturbating means; but if it appears spontaneously, it must be aided by slightly expansive and diaphoretic drinks, without attempting either to augment or prolong it.*

If the intermittent fever exists, it is very important that it should be cured, as it renews the chills and the visceral congestions. We cannot enter into any details on the treatment in this place, but will content ourselves in warning the physician, that he ought, before lavishing febrifuges, to examine if there would not be less danger in permitting the catarrh to last, than to load the stomach with irritating substances, and to check too suddenly the explosion of febrile actions. (See Part 2d. Treatment of Chronic Phlogoses of the Gastric Mucous Membrane.)

Treatment of Chronic Phlogosis of the Mucous Membrane and Pulmonary Parenchyma Menacing Red Induration.— If the treatment of the acute state has been neglected or insufficient, and the catarrh or peripneumony be decidedly chronic, the physician finds himself obliged to recur to more energetic means, or at least, to continually oppose it, by applying such remedies to the economy as will influence it sufficiently to alter the actual order of functions, and restore the equilibrium.

If we reflect upon indications, it will be perceived that the object is to mitigate inflammation in an organ to which medicinal substances cannot be immediately applied. The only foreign body that can reach the bronchial cells is steam; but as it must be hot, its temperature does more injury than its relaxing quality affords relief. I have never seen much advantage result from fumigations, even where they were charged with the mucilage of emollient plants. All these means tend only to swell the membrane, and augment the feeling of plenitude and pectoral constriction.

We have therefore but two general indications to fulfil in combating catarrhal phlogosis; 1st, to diminish the general susceptibility, and to keep the action of the sanguineous system in a state of calm, which should however be compatible with the restora-

* There is usually too much sweat in the pectoral phlegmasiæ; it is sufficient that the skin be covered with flannel to keep up its action; but the internal use of sudorifics is dangerous.

tion of the body; 2d, to invite the forces and fluids towards the other organs, and especially towards the skin.

1st. *To diminish the general susceptibility*, in order to remove any excess from the lungs, is indispensably necessary; but it is not always without danger, for, as we have already seen, debility in the acute state is favourable to chronic induration. Nevertheless, experience has always shown me that chronic coughs were exasperated by active stimulation, if they did not at once give way. In fact, for this sudden revulsion to take place, it is necessary that the phlogosis should not yet have produced any disorganization; that it should be confined to a morbid action of the exhalents and excretories of the mucus; that the red capillaries should not be in too energetic a state of action; and finally, that the subject should not be too sanguine or irritable. As all this cannot be verified except by a skilful physician, none other should attempt the removal of a chronic irritation of the lungs by perturbating means. It is therefore dangerous to advance vaguely, as is sometimes done, that the tonic method ought to prevail in the treatment of catarrhs.

It is proposed, by this means, to strengthen the relaxed tissue of the bronchial mucous membrane, and to aid the circulation in the capillaries of the circumference, in order to divert the fluids from the affected part.* This plan may obtain great success in a capital like Paris, where every thing tends to debility and the serous diathesis;† but in warm and dry countries it would be injurious; the tendency that has always existed to abuse it, often creates victims among even those who have the greatest necessity for being strengthened. It is therefore less to a catarrh than to one of its complications that the permanent or diffusible tonics are applicable.

As for myself, I, who propose to lay down precepts which can never be abused under any circumstances, cannot adopt the general opinion. In advising tonics, emollients, or sedatives, I ought to foresee the injurious consequences which may result from

* Yes, but the result obtained is different from that which was proposed.

† I then reasoned as is now done by such as are unacquainted with pathological physiology, which teaches us that inflammation reconciles itself astonishingly with debility. In fact, the lymphatic condition of the Parisians does not always exclude phlogosis; and this, notwithstanding the lymphatic state, is exasperated by tonics.

a too exclusive use of either. Hence, when I establish, as a leading indication, the necessity of diminishing the general susceptibility to weaken that of the lungs, I must not expose the physician to the danger of causing a debility in his patient which would be injurious to the resolution of the chronic phlegmasia. For the same reason I must avoid the contrary excess, in treating the second indication, that of giving such a direction to the vital actions as will preserve the lungs from a fatal engorgement, since this indication can only be fulfilled by tonics.

I believe a prudent medium can be chosen, and the maintenance of the forces conciliated with the diminution of the general irritability; for example, by giving such quantities of farinaceous and gelatinous food as are sufficient for the wants of the economy; and by withholding animal food, except in broths, soups, or jellies, during the whole time the dyspnœa remains, or the nocturnal fever is alarming, in short, as long as the irritation appears disseminated in the greater part of the bronchial cells; by banishing all preparations rendered stimulating by fat, oil, salt, or aromatics; by allowing such a quantity only of fermented liquor as is sufficient to render the digestion perfect, but not capable of overheating the stomach, or of propagating the erethism to the nervous system; and by choosing among the remedies such as, without irritating the stomach too much or exciting the circulation, have the property of concurring with the remedies which have been spoken of, in sympathetically rousing and keeping up action in the skin and kidneys.

I have always employed solutions of gum Arabic or tragacanth, mucilages of flaxseed or mallows, mixed with a great quantity of water, as a drink, or mingled and united with the sweet oils, emulsions, or white of egg, in the form of potions, cough mixtures, &c. and taken in small doses. If I was fearful that these preparations would induce too much relaxation, I strengthened them with some of the aromatic tinctures and with ether.

Bark, rendered milder by gum Arabic, has appeared to me useful in some cases of anorexia, but I have always observed that it was dangerous to continue its use,* because it is not the speci-

* From the commencement of my practice, I perceived that the protracted use of tonics destroyed the health. Afterwards, I discovered that this depended on a gastritis which they produced. Cullen made the first observation as regards the bitters, but the second escaped him.

fic remedy in this case. The Iceland moss is employed to fulfil the same indication, as it is a mucilage combined by nature with a bitter extract and an astringent principle.

Some glasses of very weak lemonade, of barley water, or mallow or flaxseed tea, edulcorated with an acidulated syrup, are often successfully opposed to the gastric irritability and to the tendency to vomiting which manifests itself during the fits of coughing; but the physician should be always prepared to correct the relaxants by mild tonics, or these by relaxants.

Opium is a precious sedative, when the gastric susceptibility permits its use. If it be combined with powder of ipecacuanha, it facilitates the transpiration, and prevents fits of coughing for whole nights, an invaluable advantage in chronic catarrhs. It is better to prevent the superabundance of the bronchial mucosity by narcotics and mucilages combined with mild astringents, than to incessantly labour to divide, cut, and cause their expectoration by the preparations of squills and acrid remedies, which really cut nothing but the too sensitive tissue of the mucous membrane of the stomach.

In short, whilst endeavouring to lessen the general susceptibility, care must be taken to support the forces, and even to gradually augment them, solely by accumulating and placing them, if I may be allowed the expression, in reserve; for it is dangerous to develope them suddenly. The evil produced by these momentary exacerbations is most usually irreparable.

2d. *To invite the forces, and with them the fluids, towards the other organs*, and especially towards the skin, also presents a host of difficulties. It too often happens that the pretended stimulating specific of the skin or kidneys, stimulates the lungs still more powerfully, and augments the progress of the induration. In alluding to the medicaments of this class, I will indicate those whose action has appeared to us as the most advantageous, and least subject to inconveniences.

Internal means.—The sudorifics that are used should be mild. The exotic woods have rarely succeeded with me. I have often seen them produce nocturnal sweats, which debilitated the patients without benefiting the breast. The mineral sudorific powders are still more improper. I have never been able to continue the use of any other diaphoretic, than pectoral or gummy juleps aromatized with some essence, with the ethers rendered anodyne

by the addition of laudanum, or strengthened by a small dose of kermes mineral, according to the indication at the time; but this latter preparation is to be avoided when the stomach appears to be easily irritated. The evil it may occasion is to be remedied by acidulated mucilages.

The infusion of elder sweetened with honey, and sometimes acidulated with the citric acid, those of poppy, thyme, or other light aromatics, edulcorated with the syrup of diacodium, have also appeared to me as advantageous, but only when the necessity of encouraging the gastric action is evident,* and when the dryness and torpor of the skin are rather the result of the debility than the sympathetic effect of the disease of a viscus.

It should always be recollected that every thing which accelerates the pulse, every thing which causes a slight fatigue and heat, augments the cough and hastens death, except it results from a sudden revulsion, which completely relieves the irritated organ. But these fortunate crises are rare, and if they be not obtained in a short time, the phlogosis is exasperated, and the resources of life are exhausted in perseveringly endeavouring to develope them; the indocility of patients, almost always slaves to their appetites and caprices, have furnished me but too many examples of this. It is not on the great number, but on the choice and proper quantity of medicaments that this cure is founded. The aim should be to keep up the evacuations of the skin, without any distress perceptible to the patient, or sensible even to his physician by an acceleration of pulse.

A sufficient flow of urine may be obtained by slightly nitrated drinks, or by whey; sufficient stools by a few ounces of the pulp of prunes, by a dose of cream of tartar, or by tamarind water, &c. administered from time to time, especially if the bowels seem torpid. Emollient enemata need scarcely be recommended.

External means:—These are reducible to warm clothing, worn next the skin, as flannel jackets; to baths of the temperature of the body, and the bathing tub should be placed close to the bed, for obvious reasons; to dry baths of sand, of heated ashes, and of grape husks;† to frictions, which ought to be

* This supposes the absence of symptoms of gastritis.

† The power of dry baths to heat the skin without introducing aqueous molecules into its tissue, entitles them to the first rank among such remedies as

mild and often repeated; and to partial topical applications and to exutories.

The topical applications are of two kinds, emollients and rubefacients. The emollients are cataplasms and mucilaginous fomentations. I have cured a catarrh which, for thirty-seven days had resisted five or six blisters applied on different parts, by a large cataplasm to the anterior part of the thorax. The relief was so prompt, that it surpassed my expectations. I have always pursued this mode whenever circumstances have permitted the employment of it. The cataplasms should be made with flaxseed meal, mixed with bran, or with bread. I prefer them to a blister when the patient appears to be both nervous and sanguine.

Fomentations have nearly the same effect, but the tendency of the cloths to become cold, should induce us to prefer cataplasms, if they can be procured of good quality. It is important that they should be well bandaged, especially in military hospitals, where the patients are scantily clothed, as this serves in some degree for a jacket.

The rubefacient topical applications, which generally consist of cantharides, or of sinapisms, are so universally employed, that it is enough to allude to them, to eulogise them. I have often observed, that all the desired effect has not been obtained from them, when the patient was too irritable, and subject to sleeplessness and nocturnal cough. I have often found them very useful in lymphatic constitutions, and in certain robust and muscular individuals, but of an obtuse sensibility, and who were but little alarmed at their situation.

Exutories are indispensable in chronic catarrh. I mean that a conscientious physician would have to reproach himself if he lost a patient without having employed them. Nevertheless, there is a point beyond which they are useless; this is the advanced stage; and when several alternations of ephemeral fever

are capable of restoring energy to the capillaries of the circumference, of freeing the viscera of fluids which surcharge them, and of combating the serous and lymphatic diathesis with the greatest advantage. It may be concluded, from these observations, that they are particularly applicable to the pulmonary catarrhs of lymphatic, slightly irritable and not very sanguine individuals, and to such as are habitually subject to a dry skin and cold extremities, rather dependent on a want of energy in the sanguine apparatus, than on the influence of the disease of a large viscus.

and calm, swelling of the eyelids, and œdema of the feet take place. At this time, like every other debilitant, they hasten the fatal catastrophe. If, after employing them at the commencement, the cough could not be prevented from lasting for three weeks, to two months; if, at the end of that time, there is danger of infiltration, they must be abandoned, and recourse had to palliatives. The moment for applying them, is when the catarrh, or even the peripneumony threatens to assume the chronic character. There is the less risk in their use, as they are equally well suited to phthisis.

Preference should be given to such as divide the skin and induce suppuration, even of the cellular tissue. Either the cautery or the seton may be chosen. If the first be selected, it may be applied to the breast; I think I have found it more useful there than on the arm.*

I have often made use of the cautery in chronic coughs; and when the lungs were not tuberculous,† and I saw the patients before the disease had far advanced into the chronic state, I obtained some success from it. The multitude of patients, not having permitted me to collect a detailed history of all the catarrhs which were interesting, I confined myself to the record of the most severe; and as these are the most likely to terminate unfavourably, my collection contains more cases of post mortem examinations than of cures.‡ I cannot, therefore, give as many particular cases in which this plan of treatment was advantageously employed, as I could wish: I must be content with stating in general terms, that having used cauteries in ten or twelve soldiers, whose catarrhs, already protracted for upwards of two months, led me to fear an advanced stage of induration had taken place, I was unsuccessful in three only, who died some time afterwards, in a state of the most marked phthisis, which was confirmed on examination. But at the same time I must not conceal that the elevation

* The moxa has obtained much celebrity since the first edition of this work; in fact, it is to be preferred when the fever and nervous susceptibility are not excessive.

† At least when I thought it to be so.

‡ I now obtain more cures, because, in the commencement of these diseases, I have less dread of debility, than at the period when this work was written. Let those who are now what I then was, follow my example, and they will cease to reproach me with having too exclusive principles.

of the atmospheric temperature concurred in their restoration, as well as a gelatinous diet, and the other internal means heretofore indicated.

It is to this small number of precepts that I limit what I have to say on the treatment of chronic catarrhs. Whoever will study them closely, will find among them, all that he may require to combat the varieties arising from seasons, locality, circumstances, and difference of constitution. At present, as models for the application of them, I will give some cases of chronic catarrhs which terminated favourably. After having been so long contemplating the pictures of death, the mind dwells with pleasure on a case which seems to avenge the art, by crowning the cares and exertions of the physician with complete success.

CASE XVI.—*Simple chronic catarrh.*—Dupré, aged twenty-four, black hair, white and delicate skin, face uniformly coloured of a clear and vivid red, medium height, thin, but little muscular; had always been subject to catarrhs, but had never experienced any one which had been as obstinate as that for which he was sent to the hospital of Woerden, near Utrecht, the 16th Messidor, an XIII. He stated to me, that being in a perspiration, about thirty-seven days previous, he became chilled whilst washing clothes; from which time he began to cough; that his whole breast had become painful, the cough violent, and the expectoration bloody.

He was treated, for a month, by several blisters on the breast, and pectoral and anodyne juleps. The symptoms were always the same; they consisted of a loud, harsh, painful cough, almost incessant during the night, with a very difficult expectoration of a clear and viscid mucus, often tinged with blood. He but seldom slept, skin almost always moist, face much flushed, pulse natural, rather feeble than strong. The patient was oppressed and harassed. Six leeches were applied on the breast. I followed them up by a blister, which I ordered should be made to suppurate. Pectoral gummy drinks, and a vegetable diet were the only internal means which I adopted.

At the end of six days he was somewhat relieved. He coughed less, but the fits of coughing were still very painful. I ordered a large cataplasm over the breast.

Even that day, and the following night he scarcely coughed; I have never seen the irritation of the breast more promptly alle-

viated. From this time two or three efforts sufficed to expectorate the mucus which had become thick and opaque. The appetite, which had been wanting for eighteen days, was restored. I added a little oxymel of squills to his juleps, and some wine to his food, which was augmented in quantity, and in a fortnight Dupré was sufficiently recovered to be allowed a three-quarter's diet, and to leave the hospital about fifty-two days from the commencement of the attack.

Observations.—We here see a chronic catarrh still in its first stage. If there be any sign which can indicate that induration has commenced, it would be an alteration in the colour of the blood,* But Dupré still preserved all the freshness and vivacity of his complexion, and hence suffered under that degree only of catarrhal irritation which does not extend beyond the bronchiæ. But who can doubt, that if Dupré had been exposed to the action of the cold, especially on his breast, for a month longer, and that it had been stimulated by food and remedies capable of arousing the action of the sanguine capillaries, who can doubt, I repeat, that the pulmonary parenchyma would finally have lost its action, and that the inflammation would have been terminated by a fatal induration or by the development of tubercles.

But are discolouration and infiltration always indications of the disorganization of the lungs, following protracted coughs? The following case will answer this question.

CASE XVII.—*Chronic catarrh reaching the œdematous stage, and cured.*—Desjardins, a soldier in the 84th regiment of the line, aged twenty-five years, tall, white and soft skin, chesnut hair, lean and not muscular, thorax contracted towards its superior part, entered the hospital of Bruck, the 6th Nivose, an XIII. stating that it was the twenty-second day of his disease. He had contracted on the march a cough, which soon became complicated with lassitude, pains in the loins and limbs, anorexia, and a slight fever, accompanied with almost continual chills. Being left alone in the mountains of Styria with the peasant who drove the cart in which he was carried, he was beaten by this

* The dull sound is a more certain sign. I have already spoken of it; to this may be added the want of any respiratory sound when the stethoscope is applied.

man, who, supposing that he had killed him, threw him out of the vehicle and left him in the midst of the snow. This unfortunate wretch was afterwards found by some of our men, who placed him in the hospital of Bruck.

The immobility in which he had remained for several hours, stretched on the snow, had considerably augmented his catarrh, which, before this, had been unattended with fever; so that on his arrival Desjardins was in a very dangerous state. His head, which had been the most injured, presented several contusions, some with solution of continuity. However, these all healed in a few days, without the appearance of any cerebral symptom. It was not so with the cough; for eight days Desjardins was affected with a violent fever—with a frequent, strong, and developed pulse—heat, moist skin, continual cough, and thick, opaque, and very abundant expectoration. The voice became hoarse and painful, the cheeks sunken, and the dyspnœa increased on the following days to such a degree, that the patient was obliged to sit up in his bed to breathe, with his neck extended, and all his body in a state of contraction; he rapidly became emaciated, and when, on the thirtieth day, the fever disappeared, I thought that he was about dying. But the disease suddenly assumed the appearance of chronic catarrh; he became extremely weak, pale, and fetid, spitting much, and having a slight rhonchus; his face and extremities became infiltrated, he began to acquire some appetite, but still coughed at night.

In this state he underwent the fatigues of the evacuation of the hospital, and after having remained for fifteen days at Laybach, still having the straw-coloured complexion, the infiltration, and the nocturnal cough, he finally recovered, left the hospital at the end of a month, and I afterwards saw him doing his duty, perfectly well. The whole duration of the affection of the breast was about two months.

Observations.—This case presents a catarrh accidentally induced by cold, kept up and rendered chronic by the same cause, exasperated by fatigue, and rendered still worse by an increase of the action of cold added to ill treatment, again becoming chronic with exhaustion of the patient, and finally terminating by a complete resolution.

In the treatment of this disease, I always studied to contravene the direction taken by the disordered state of his system. Dur-

ing the febrile state I caused suppuration from his blisters, but perceiving that his strength was diminishing, I relinquished this, and began to give ether and kermes mineral in addition to the mucilages, to invite cutaneous evacuations, and to combat the violent tendency of action towards the breast; I also gave large doses of opium in the evening, with the same intention, because the opium, in exciting the capillaries of the circumference, mitigates the pain and removes the sleeplessness resulting from it. I persevered in these two classes of remedies, relying the more on their efficacy, from knowing that this man had been a long time harassed by a chronic catarrh, following an intermittent, in Zealand, and had his lungs weakened;* when the complete loss of reaction forced me to augment the tonics. The infiltration soon induced me to solicit the action of the kidneys, which I did by a combination of bitter wine and squills. The appetite, which had always languished, became better, and was the signal of amelioration.

It would be very difficult to explain why Desjardins, with every appearance of a debilitated constitution, was saved from induration, whilst Cario, (Case IV.) and many others whom I have not spoken of, fell victims to it in a much shorter period, although they were better formed. This advantage was not the result of his debility, as in general, the most debilitated have perished sooner than the others. Was his safety owing to some particular pulmonary vigour? This cannot be presumed in a man, who after the intermittent fever of which I have spoken, was so short-winded, that it took him half an hour to ascend the stairs of the hospital where he then was, and this catarrh was not of more than one year's duration. At all events his case proves that it is very difficult to appreciate a man's strength, and to assign any limit to the resistance of an organ suffering under inflammation; it above all demonstrates, that neither the hectic fever, the œdema, nor the yellow colour, are certain signs of the disorganization of the lungs. It also proves that a physician should never abandon a patient, nor ever give him up, however far the pulmonary affection may appear to be advanced. Cases as fortunate as this are rare, it is true, but I can also cite others.

* That is, too irritable.

CASE XVIII.—*Simple chronic catarrh.*—Tessier, aged twenty-four years, dark complexion, large, fat, and fleshy, but lymphatic and but little sensitive; was treated by me at Nimeguen, in the spring of an. XIII. for a very inflammatory peripneumony followed by a dry cough, and a kind of languor with dyspnœa, for about twenty days. Six months afterwards, I again found him at Bruck in Styria, where he was suffering from a catarrh accompanied with much oppression, pain in the breast, and even delirium, but without any violent action of the circulation.

Blisters, demulcents, and aromatized and etherized mucilages were my only resort in this relapse. In twenty days, Tessier recovered from this alarming state; and I was much astonished at his cure. Two months had scarcely elapsed, before Tessier was admitted into the military hospital at Udine for a third affection of the breast.

He entered the 15th of March, 1806, complaining of a more than usually violent cough for four or five days. He had always retained some dyspnœa and cough, and had never perfectly regained his strength. I put him on the use of slightly kermetized pectorals. He had appetite, which induced me to nourish him a little. After twelve days of treatment, having been put on a three-quarter's allowance; he was attacked with some febrile action, with loss of appetite and increased cough. Diet and a blister calmed this effervescence, which did not last forty-eight hours; but Tessier remained of a pale yellow colour, languid, with a swelled face, the ankles a little œdematous; tolerably comfortable during the day, but much embarrassed in his breathing during the night, a part of which he passed sitting up, and incessantly coughing. The appetite was re-established; the pulse was weak, and rather slow than accelerated. Fifteen days passed in this manner, during which Tessier became weaker. I tacitly placed him on the list of the numerous victims that had been immolated by chronic catarrh during the course of the campaign.

However, I determined to try the cautery, which hitherto I had not used except in coughs which appeared to me kept up by a tuberculous disposition: but I made no change in the internal remedies. They were still composed of a mixture of mucilage and aromatics, aided by boluses of equal parts of opium and ipecacuanha. In five or six days the chest was relieved, the cough ceased, and Tessier was discharged, towards the end of April, much bet-

ter than he had been since his first peripneumony. Having seen him during September of the same year, I learnt that he had experienced no relapse; he still kept his cautery open.

By the same plan which succeeded so well with me in Tessier, I saw several other patients recover in the hospital of Udine, who were suffering under coughs contracted during the marches and fatigues of the winter. The most remarkable was that of a man named Lhuilier, of a very weak constitution, and who having suffered from a violent catarrh at Bruck, had fallen into a chronic state. After two months of equivocal health, he, like Tessier, returned to spend a month in the hospital of Udine, and was soon in a state of languor and œdema completely analogous to that from which the latter suffered. He was as happily cured.

The third cure of severe chronic catarrh accomplished at Udine, was that of a man named Flocard, who, after three relapses into the acute form, always relieved by regimen, also remained leucophlegmatic, &c. I am not certain that the heat of the spring did not contribute as much to a restoration of his functions to their equilibrium, as the remedies; but at all events, the disorder of the lungs was not irreparable. This appears to me most consolatory to army physicians, who are unfortunately but too much justified in considering chronic affections of two or three months standing, accompanied with œdema of the face and extremities, as signs of a complete disorganization, especially where the soldiers have been worn out by laborious marches.

Aneurism of the heart, with augmented arterial energy,* heat and disposition to phlogosis, requires the use of blood-letting. The inflammatory diathesis which menaces the parenchyma with red induration† cannot be moderated in any other way; emollients, acids, and the least nourishing vegetable diet, must be used in aid of this first means, and be persevered in until such general effects have been obtained as are required.

When the disposition to passive aneurism,‡ or to varicose en-

* Hypertrophy of the heart.

† The application of leeches to the lower part of the neck and over the trachea, is the best means we possess to check the progress of catarrh and prevent induration or phthisis.

‡ The passive aneurism of Dr. Corvisart is true aneurism. His active aneurism is referrible to hypertrophy of the heart.

gorgement of the pulmonary vessels, is found complicated with the previously chronic catarrh, the best resource, in my opinion, of which the physician can avail himself, is dry heat. I therefore propose baths of heated ashes or sand* for such patients as are threatened with a fatal engorgement from a debility of the centre of the circulation. I must avow that I have never made a trial of them, but I have so often seen dyspnœa, coughs, and continual difficulty of breathing, accompanied with the varicose appearance of which I have spoken, disappear during the heat of the summer, that I have determined to imitate nature when I have an opportunity. To plunge the patient into a warm or steam bath, is to present an obstacle to evacuations which might disgorge the capillaries, whilst they are distended beyond measure by the heat. The dry bath is revulsive and evacuant without ceasing to be tonic; a great advantage to patients who are momentarily threatened with death from suffocation by the blood and serosity, on account of the inertia of the vessels, and the engorgement of the nervous centre.†

A mucilaginous and vegetable diet must be added to this means, as well not to surcharge the sanguineous system, as to spare the forces of the stomach, which sometimes suddenly fail when the venous plethora is very great. The stomachics are useful in aiding the digestion,‡ and the stimulants of the different external apparatus should not be neglected. Cold and the passions should be avoided as dangerous obstacles; the intermittent fever ought to be cured as speedily as possible. As soon as the bark can be borne, recourse must be had to it; if it appears too irritating, the treatment we have laid down in the chapter on gastritis complicated with this fever, should be combined with the employment of dry heat and the regimen we have just recommended.

* I prefer the sand to ashes, which obstructs the pores, and prevents transpiration.

† It is the inertia of the heart, which produces the varices and infiltrations.

‡ I did not pay sufficient attention to complication with gastric phlogosis, so frequently met with. The symptoms of this affection will indicate the moment when the use of tonics is to be given up.

SUMMARY OF THE HISTORY OF CHRONIC CATARRHS AND PERIPNEUMONIES.

1st. *Causes.*

They arise from two sources: 1st, from all irritations which act on the parietes of the thorax, on the mucous membrane which lines the ramifications and even the cells of the bronchiæ, or on the whole tissue of the lungs, as exertions and running; 2d, from impressions, whether internal or external, which suddenly cause a torpor of the skin, checking or suppressing the secretions, and diminishing the activity of the circulation in the capillaries of the skin, the cellular tissues, and the voluntary muscles.

2d. *Development.*

When after the symptoms of a peripneumony, which has not terminated in the usual time, or in consequence of a cold which has been exasperated by several relapses, we observe an obstinate, dry cough, and difficulty of respiration, which is often inconsiderable except when the patients attempt to walk, or ascend heights; apyrexia, or only an acceleration of pulse in the evening, with redness of the cheeks; heat of the skin and increased cough; alteration of the colour, which appears of a faded hue mingled with a shade of straw-yellow—it is to be feared that the irritation of the sanguine capillaries of the lungs, will slowly terminate by a red induration. There is the more reason to dread this termination, when the symptoms of aneurism of the heart and chronic pleurisy do not appear, and when the subject is less exposed from his temperament to cough and dyspnœa.*

3d. *Progress.*

When this affection is properly treated, the symptoms continue to diminish, and the cure generally takes place without critical efforts, and even in an insensible manner.

If the causes continues to act, and if the patient indulges his ap-

* To these signs must be added the dull sound obtained by the percussion of the affected side, the difficult entrance of the air into the parenchyma, with rhonchus, hissing, and crepitation, and at a still later period, the absolute absence of respiratory sound. (See Laennec. *Auscultation*, &c.)

petite, this calm is interrupted by a febrile exacerbation, with a return of the symptoms of peripneumony or of acute and even suffocating catarrh; but they promptly yield to an antiphlogistic treatment, and the patient remains feebler than before.

The same errors may several times reproduce the same accidents in the course of two to four months. But the patient grows weaker and enervated, although he becomes but slightly emaciated.

Finally, œdema appears, particularly in the eyelids, and sometimes suddenly becomes very great.* It ordinarily announces death, which suddenly takes place when the patient has suffered for a long time; whilst it is preceded by a painful struggle, if he perishes before he has become exhausted.

4th. *Organic Alterations.*

The parenchyma of the lungs becomes red and indurated, even to the consistence of liver; but sometimes, in the centre of this induration, soft and pasty points are met with, as if the organ were broken and putrefied. The pleura often exhibits a membranous exudation adhering closely to its surface, and containing some effused serosity. When there is a greater alteration, it is generally announced by other symptoms.†

5th. *Treatment.*

The cure is obtained, when the induration is not too far advanced, 1st, by avoiding cold, and all occasional causes; 2d, by calming the irritation by demulcent medicaments, rest, and tranquillity of mind; 3d, by repairing the losses with farinaceous and gelatinous food, which afford much nourishment, without causing too great irritation, and by favouring the digestive function, during the state of apyrexia,‡ by moderate tonics, and never by acrid or alcoholic substances; 4th, by exciting the action of those apparatuses§ which are not affected, by light diaphoretics, feeble diuretics, the least stimulating laxatives, general or local topical applications, which solicit the cutaneous secretion; 5th, by producing

* Especially if there be an obstacle to the circulation of the blood, from aneurism of the heart, or from any other cause.

† See Pleurisy. ‡ And when there is no gastritis.

§ We use this plural on the authority of Noah Webster. See his Dictionary. Trans.

artificial phlogoses, by means of revulsives, by blisters, and exutories with division of the integuments.

6th. *Complication.*

The complication of chronic catarrh with the other modes of irritation of the breast, require no change in the curative plan. The phlegmasiæ of the organs of digestion exact some precautions, which modify the treatment of catarrh; these will be found in the second part of this work. None of the continued fevers, except the adynamic, ought to influence the treatment spoken of, by forcing the practitioner to give more of the diffusible stimulants than the principal disease when not complicated would demand.* When intermittent fever is complicated with chronic catarrh, it is treated with bark; and if there be any danger in using it, recourse must be had to the method that I have advised for intermittent fevers combined with chronic irritation of the alimentary canal.

APPENDIX ON PECTORAL CATARRH.

Since the year 1803, when I composed my inaugural dissertation on hectic fever,† I have paid attention to local irritations which keep up febrile actions. Trnka, author of a treatise on this disease, regarded it as essential whenever it did not depend on a suppuration. I went further; I insisted that it could not be attributed to an irresoluble engorgement; in short, I thought that it ought to be cured, before it could be pronounced that it was essential. Those who have read the "*Examination of Medical Doctrines*" are fully aware how ridiculous this pretension was, but this was not perceived at that time as every one was an ontologist. My thesis was eulogized, because it was in the spirit of the reigning doctrines, and my first examination would have induced a proscription, if it had appeared in an intolerant age.

* This is an error, the fruit of the inordinate respect which I had for certain authorities, and from a want of sufficient observations. I could not testify to the utility of tonics; but I would have believed it a crime to have doubted it; I preferred to believe that I had not yet observed sufficiently.

† *Recherches sur la fièvre hectique, considerée comme dependante d'une lésion d'action des differens systèmes, sans vice organique.*

I was aware that the acute organic irritations which develope an equally acute febrile state, are not always incurable; but as every thing in medicine was mysterious, I might think that it was different from chronic fevers, without appearing ridiculous to a multitude of physicians, who, although already grown gray in practice, knew nothing more than I did relative to this question, as well as to many others. Nevertheless, perfectly essential as these hectic fevers appeared to me, I could not avoid referring them to organs. I recognised in some an excess of action, which I even called *irritation;* but, after the example of Dr. Pinel, I avoided confounding them with inflammation; and all this trash passed without comment in the midst of the confusion, disorder, and despotism which reigned a few years since in medical theories. At the same time, my researches served to show that the irritation of organs does not change its character by being protracted, in spite of the diminution of forces and the progress of marasmus, and consequently that it should always be combated by remedies of the same class.

Be this as it may, certain chronic irritations of the mucous membrane of the trachea and bronchiæ, kept up by the presence of foreign bodies, ought to be placed by the side of the catarrhs I have just described, and which originated from the influence of cold. Such are the following cases which I detailed in my *Researches on Hectic Fever.*

"Borelli saw a captain of Rouen, who having inadvertently swallowed a piece of nut, it passed into the trachea. He experienced a violent and constant cough, but which gave him no suspicion of its cause. He afterwards fell into a slow fever and became emaciated; finally, having reached the last stage of consumption, at the moment when it was thought his end was approaching he took some acid substances, which occasioned a violent cough, by means of which the nut, in a half putrid state, was expectorated, and the functions were gradually restored to their natural rhythm."

"Grape seeds have been known," I also observe in the same work, "to produce analogous effects. Any substance lodged in the larynx or trachea may give rise to them, and perhaps the diagnosis will not present as many difficulties as substances contained in the stomach. A local pain, an habitual cough, both very violent, even

the menacing of suffocation on the displacement of the body, will with the history of the case, be the bases for drawing a diagnosis. This last especially merits a serious consideration; for it is possible that the presence of the body may excite neither cough nor local pain. Such cases must be rare, on account of the extreme sensibility of the larynx, but they have been met with. We must here, as in many other instances, bow to observation.

"A citizen of Augsbourg, tormented with violent pains in his teeth, heard that gold was the best remedy for them, and above all a powerful anodyne. He placed a ducat on the affected tooth, went to bed, and slept profoundly. When he woke the ducat had disappeared; he sought for it in vain in his mouth, in his bed, and even through the whole of his house. Surgeons were called in; the absence of all pain, and all feeling of uneasiness in the region of the throat led them to pronounce that the trachea was not the hiding place of the piece of money; they rather supposed that it had been swallowed. However, some months afterwards, he had a hoarse voice, slow fever, and consumption; the researches about his larynx were renewed, but without success. One gave bark, and recommended that the patient should be sweated; his condition became worse. Finally, they confined themselves to demulcents, and the piece was accidentally expectorated, in an effort which the patient made, after remaining in the larynx for two years and two months. The health was soon restored, and remained so for a long time."*

I will extract from my dissertation what I then said of catarrhs capable of keeping up hectic fever, and add such reflexions as the actual state of the science rigorously demands.

"When the hectic is owing to the irritation of that portion of the membrane which is spread through the lungs in lining the interior of the ramifications of the bronchiæ, the symptoms have so much analogy with those of phthisis, that nothing less than an extreme sagacity will enable us to detect the difference. Celebrated physicians have been deceived, and have not recognised their error until they inspected the parts. This disease is generally the sequel of a protracted catarrh; there is

* P. Hœghsterus, Obs. Med. dec. 6, cas. 10, p. 726.

an abundant secretion of mucus, which soon assumes the appearances of pus; hectic fever takes place, and rapidly induces marasmus; the patient dies, the body is opened, and the lungs present no appearance of lesion. This is what I call a hectic fever from irritation and debility of the mucous membrane of the bronchiæ, and which I assimilate to hectic from diarrhœa and that from leucorrhœa."

De Haen was acquainted with this species of consumptive catarrh, and after having in vain sought in dead bodies for the source of the kind of pus which was expectorated, he concluded that it was formed in the blood. He gave the disease the name of *phthisis*. But why abuse this word, which every where else is employed to designate the suppuration of a viscus with destruction of its tissue, or at least, irresoluble engorgement, and consequently disorganization?

This excessive secretion, which gives rise to hectic fever, is sometimes the sequel of a simple and epidemic catarrh, at others of an acute disease, which appears to terminate by a violent afflux of fluids towards the mucous membrane of the bronchiæ. We will successively offer examples of these two cases.

"Mrs. ——, aged upwards of forty, who had for several years been subject to a cough and spitting in the winter months, was, in October, 1756, seized with those complaints in a much greater degree than usual; to remove which she was blooded, and got some attenuating and pectoral medicines from Mr. John Balfour, surgeon-apothecary in Leith. I was called on November 11th, after she had been ill several weeks, and found her in a very unpromising condition. She had a frequent and severe cough, with great shortness of breath and a wheezing; her lungs seemed to be quite stuffed with phlegm, of which she spit a vast quantity every day, and of such an appearance, that I was apprehensive it was, in part at least, truly purulent. When she sat up in a chair, her pulse beat above 130 times in a minute. She had a considerable thirst, and her tongue was of a deep red colour, with a beginning aphthous crust on some parts of it. She was so weak, and her pulse so feeble, that there was no place for further bleeding: a blister was therefore applied to her back, November 11th, which somewhat lowered her pulse, and lessened the shortness of breathing and quantity of phlegm in her lungs. November 16th, a second blister was laid to her side, which gave her still

more sensible relief than the former, and reduced her pulse to 114 strokes in a minute. November 25th, a third blister was applied to her back, by which her cough and wheezing were rendered considerably easier, and the phlegm which she spit up lost its purulent appearance, became thinner, more frothy, and was much less in quantity. Her pulse beat now only 104 times in a minute. After this her cough and spitting increasing again, she had, on the 20th of December, a fourth blister applied to her back, which, like the former, did her great service. Her stomach being extremely delicate, I scarce ordered any medicines for her all this time, except a cordial julep, with *spir. volat. oleos.* tincture of rhubarb as a laxative, and a julep of *aqu. rosar. acet. vin. alb.* and *syr. balsam.* of which last she took two table-spoonfuls twice or thrice a-day in a quarter of a pint of linseed tea. After the fourth blister, she drank for some time a cup-full of *infusum amarum* twice a-day, and continued to recover slowly: and though during the remaining part of the winter, she was, as usually, a good deal troubled with a cough, yet in the spring she got free from it, and is now in her ordinary health."*

"Professor Bosquillon, in his 'Commentaries on Cullen,' article Phthisis, says that Dr. Chapman gave the bark with success to a woman who had hectic fever with purulent expectoration, and a feeling of weight, which she referred to below the sternum. What led Chapman to believe that the person was not phthisical, was, that the disease had commenced at a time, when epidemic catarrhs were prevalent; that it had suddenly acquired great intensity, without having been preceded by a dry cough; that fluid analogous to that of the expectoration flowed from the nose; that the urine was not greasy, but deposited a white or brick-coloured sediment; that, finally, after some time, the hectic assumed the type of a tertian fever. The bark was at first given in decoction, but with caution. Its good effects rendered the physician more bold; he gave it in substance, and obtained a perfect cure."

"The second case of hectic from catarrh is where this latter succeeded to an acute disease, as if it was the crisis of it.

* The Works of Robert Whytt, M. D. Edinburgh, 1768, p. 717. Our author has given an imperfect notice of this case, quoted from PORTAL, *Traité de la Phthisie, p.* 214; we have, however, thought it better to insert the original.—TRANS.

"M. de Montausier had in 1786 a putrid fever, succeeded by an intermittent, which afterwards became remittent. He became considerably emaciated; cough took place; it was at first dry, and terminated by a copious expectoration of glairy matters, which afterwards appeared puriform; the fever increased every evening, and abundant sweats took place in the morning, when it subsided; there was swelling of the face and extremities; finally, the stools were liquid, copious, yellowish, and fetid. The patient was cured by bark, followed by the antiscorbutics and asses milk."*

"Following this case is another which is completely analogous in its symptoms; but the disease commenced by an intermittent fever, which changed into a continued, and afterwards to a hectic form."

"De Haen, *(Ratio Medendi,)* Bennet, *(Theatrum tabidorum,)* opened the bodies of persons who had apparently died of phthisis pulmonalis, and found the lungs in a sound state. There can hence remain no doubt of the existence of a hectic fever from debility and irritation of the mucous membrane of the bronchiæ; nevertheless, we have no invariable symptoms of it; as we have no faithful histories of patients who have fallen victims to it, which we can compare with those of persons who have been cured by us moderns."

These observations present examples of phlegmasiæ of the mucous membrane of the bronchiæ, which, it is said, have been cured by bark and other tonics, aided by demulcents, vesicatories, &c. It would be rash to deny such cures, since inflammations do sometimes yield to revulsives capable of displacing the irritation. Moreover, copious and extremely debilitating expectorations are often seen, which are cured by the employment of astringents applied to the mucous membrane of the stomach, when the latter is not itself in a state of super-irritation. However, I can assert, that having several patients affected in this manner, I have rarely found, although I have sometimes accomplished it, that the cure was complete. In most cases these persons relapsed, or a chronic gastritis was developed under the influence of the tonics, which physicians have termed *hypochon-*

* Portal. Traité de Phthisie, 357.

dria or *obstruction*, and which they were far from attributing to its true cause. From these observations, which I still have occasion to repeat every day, I do not hesitate in asserting that the rule which is so prevalent among physicians, that protracted catarrhs require the use of tonics, is one of the most dangerous that has ever been laid down. In fact, it need seldom be applied in practice; for catarrhs which are so mild as not to be exasperated by the use of Iceland moss, bark, acetate of lead, &c. would yield still more readily to abstinence and a milk diet, aided by revulsives, and there would be less fear of a fatal relapse. As I have daily occasion to treat these diseases among our veteran soldiers, and as I have tried all methods that have been recommended, I believe myself competent to speak on this question.

These same subjects have also served to explain to me those pretended consumptions with purulent expectoration, in which De Haen never found any lesion on a post mortem examination. These are, in general, aneurismatic patients in whom the expectoration is kept up by the stagnation of blood in the capillaries of the lungs. These patients are equally relieved by tonics, antiscorbutics, and diuretics, which promote the different excretions; but this cannot take place except when the disease of the heart has not progressed too far, and sometimes rest has more efficacy in the pretended cure than the medicaments. But follow these patients for some years, and you will find a period when the tonics, far from alleviating them, will irritate their stomach, and develope a gastritis, which will add to the sufferings necessarily inseparable from permanent obstructions of the circulation.

I was far from making these reflexions when I was only a student without experience. I believe them necessary to correct the errors or speculations I have advanced in my inaugural thesis. I intend to pursue the same course with regard to the other phlegmasiæ which I spoke of in that treatise as causes of hectic fever.

CHAPTER II.

Of Pleurisy.

In the post mortem examinations which I have given, the serous membrane of the lungs has sometimes been seen in an inflamed state; a lactiform serosity, filled with whitish flocculi, and analogous to the exudation adherent to the membrane, was sometimes found so abundant, that we cannot deny that it must have produced particular symptoms.

Now, if we wish to ascertain, in the series of the diseases of the patients we have cited, in Cario, (Case II.) for instance, what belonged to the inflammation of the pleura, and what to the collection of its product, it is requisite to retrace the sufferings of those who have owed their death entirely to pleurisy.

This phlegmasia has been the subject of many disputes. For a long time, acute pain in the side of the thorax, interrupted respiration, an active and hard pulse were assigned to it as its particular characters, until physicians of no slight weight, observed that these symptoms did not exclude phlogosis of the parenchyma. It was soon confidently asserted that the pulmonary pleura could not be inflamed, without the irritation penetrating into the substance of the lungs.

Although the question may not yet be decided in the eyes of many celebrated physicians, it nevertheless appears that the majority of those who are devoted to the healing art, agree in regarding the acute and pungent pain in the parietes of the thorax, joined to frequency and hardness of the pulse, as indications of the phlogosis of the pleura; and that obtuse pain, bloody expectoration, great dyspnœa, and deep red of the cheeks, are to be considered as characters of peripneumony.

I will not undertake to add to the numerous proofs which we have of the truth of this division. I will not present acute pleurisy marching without concealment and escorted by symptoms which designate it, but I will try to discover whether this disease always presents itself thus supported, whether it does not sometimes lose its external symptoms, without, however, ceasing to exist; I will

endeavour to remark the nature of its complications, their dangers, and the means of remedying them; in short, I will follow this phlegmasia through the labyrinth of its obscure and chronic state, as far as the facts which I have collected will permit me. My object being to perfect the curative plan of its forming stage, and to determine whether there be any method of curing pleurisy when it has become chronic; I will state with equal frankness what I have seen, what I have done, and what I ought to have done.

The fixed and pungent pain that has been regarded as the most essential symptom of pleurisy, is much less so than has been thought. I have seen it wanting in the acute, as well as in the chronic state; it has even seemed to me that the most general pleurisies were the oftenest without a fixed painful spot.

A sergeant, aged fifty, sanguine and athletic, died in the hospital of Udine, on the fourteenth day, of an inflammatory affection of the breast, which produced no other evident disorder than a cough, dyspnœa, and extreme anxiety; the fever was very moderate; and if the depression and alteration of the features had not announced to me that there existed a serious disease of the viscera, I would have considered it merely as a slight cold. Death, however, discovered a sero-purulent effusion in the left cavity, with redness of the pleura, which was covered with a membranous exudation; the serous membrane of the heart and pericardium was found in the same state.

I am ignorant whether this latter phlogosis always prevents the fever from being developed with energy, but I have always observed it. Pericarditis rarely exists without pleurisy. But, if it disguises it every time that their complication takes place, either by enlarging the painful spot, or by fettering the febrile reaction, here are already a certain number of phlogoses of the pleura which are wholly destitute of external signs from which we may draw the diagnosis of these diseases.

These pleurisies, thus disguised by their own intensity, are always accompanied with an extreme prostration, and this is what adds to their danger; for as soon as the word *adynamic* or *ataxic* has been pronounced, all the remedies which are administered aid the progress and extension of the phlegmasia.

If the physician mistake this disease for that catarrh with debility which several authors have designated under the name of *false peripneumony* and *peripneumonia notha*, the treatment

which he will be led to adopt will be not less pernicious to the extensive and latent phlogosis of the serous membranes of the heart and lungs. When we shall have seen a sufficient number of patients to learn the principal modifications of the pain of the pleura, we will attempt to trace such characters as are found in the greatest number of pleurisies, which could not be done until the present time.

As the pain is the most striking symptom of this disease, I ought, in descending from the acute to the chronic state, first to present the most painful pleurisies; they will not always be the shortest nor the most violent, but of what importance is this, as my design is to elucidate latent and complicated diseases by such as are well-marked and simple, in proceeding from the most evident to the most obscure?

CASE XIX.—*Acute pleurisy become chronic.*—Allard, gunner in the fourth regiment of foot artillery; light hair, white skin, thorax narrow and flattened before, in delicate health, was placed under my care in the hospital at Udine, on the 26th of October, 1806, for a very serious affection of the breast. The following details were obtained from him:

He had been seized at Genoa, fourteen months previously, with an acute fever with pungent pain in the right side of the chest. After remaining twenty-two days in the hospital, he left it, still having some pain in the side, which prevented him from doing duty for two months. This patient had afterwards been transferred to the garrisons of Venice and Mantua, and was obliged to enter the hospitals of both places several times, and always for exacerbations of the pain in his side with fever. The last time he remained forty-five days, during which Allard had been tormented by the most violent hectic fever, with great increase at night, continual cough, very abundant mucous expectoration during the night only, sweating of the thorax. He was always treated by mucilages, demulcent juleps, and blisters applied to the painful part. Finally, his corps having been directed on Udine, finding himself worn out, he determined to seek for relief in our hospital, where he presented the following pathological state:

Emaciation approaching to marasmus; pungent pain in the right side of the breast, augmented by percussion; resonance

dull; pulse frequent, without heat, and a dry cough during the day; exacerbation with heat, accompanied with opaque and mucous expectoration during the night.

Besides these symptoms, appertaining to the phlogosis of the thorax, he had a mucous tongue, foul mouth, thirst, cephalalgia, and a complete attack of intermittent fever every two days.

I first combated the gastric symptoms by an emetic, which immediately removed them,* and the tertian fever by antispasmodics and small doses of bitter wine, which triumphed over it in ten days. The farinaceous and gelatinous regimen was rigorously observed, and on the 11th of November he only had a little frequency of the pulse with heat, good appetite, but little cough, and no uneasiness. When the patient did not attempt to walk fast or to ascend stairs, he found himself very well, and appeared to have great hopes of a cure.

Two or three days afterwards, having been exposed to a low temperature, Allard contracted a cold, which was marked by an augmentation of cough and by frequency of pulse, with continual heat of the skin. I became more strict in his regimen, and ordered him to be confined to demulcent drinks, mucilaginous, aromatized, or etherized juleps, and gave some doses of opium to procure him better nights.

As long as the catarrh lasted, the hectic fever appeared violent, and the pleuritic pain intense and constant. The patient could no longer respire when he lay on the right side; percussion was painful over the whole circumference of the thorax; the appetite had disappeared.

He was very desirous for a blister, which greatly relieved him, and which I caused so suppurate. Finally, the symptoms of the phlogosis of the parenchyma declined, and on the 26th of November, the patient asked for food.—Gruels, rice jelly, and weak soups were allowed.

From that time the febrile heat diminished, and the pleuritic symptoms became more obscure; the appetite was exceedingly energetic; the patient could take a three-quarter's allowance in the morning without doing him any harm, and although the pulse

* These cures, which are but too often temporary, are owing to revulsion, as I have shown in the "*Examination of Medical Doctrines.*" The care that was here taken to spare the stomach by a demulcent regimen, at least moderated the irritation which might have been left by the emetics and bitters.

never lost its frequency, Allard gained sufficient strength to walk about the hospital for the whole day.

Such was his condition on the 28th of December, when he asked to be sent to his depot to wait his discharge. He left the hospital, and on the 17th of January, 1807, I received him a second time, but in a completely desperate condition.

He was in the last stage of marasmus, with a *hippocratic* countenance, scarcely able to support himself, and incessantly coughing without being able to expectorate: the pain in his side troubled him greatly; the pulse was small and frequent; but this febrile agitation did not heat the skin, which appeared arid and earthy. He laid more on his right than his left side. On the 20th, about the seventeenth month from the first attack of pleuritic pain, he quietly expired.

Autopsy.—*Habitude.* Prodigious emaciation, the muscles reduced to small and almost colourless fasciculi, no infiltration. The thorax had only eleven ribs; the fourth on the right side bifurcating before it became cartilaginous. The *head* presented nothing remarkable. *Thorax.* Right lung in a state of atrophy, adhering to the mediastinum and under the clavicle; a large space between this viscus and the ribs. The pleura which surrounded it was thickened, and had passed into a lardaceous state. This large cavity was almost empty; we found only a few drachms of a serous and bloody fluid. The parenchyma on being cut into presented some small, dry tubercles. It was reddish, impermeable to the air, but flaccid, and very like flesh. The left lung adherent by fibrous, solid productions, crepitating, without tubercles or engorgements, for the subject had no fluids. *Heart* small, empty, and healthy. *Abdomen.* A little redness in the gastro-mucous membrane at the large extremity. This viscus was large, but flaccid, containing neither gas nor fluid. The liver appeared to be somewhat voluminous.

This case presents the most striking evidence of a chronic pleurisy; but it also leads us to make some reflexions which might serve as a history of the chronic phlegmasiæ in general.

We first see that the febrile action did not appear intense until the parenchyma was in a state of phlogosis; that in calming this irritation the pleurisy was reduced to its proper symptoms, which were in this case, a dull pain, want of resonance in the af-

fected side, dyspnœa in ascending, dry cough, and frequency of the pulse without heat. It becomes evident to us, that these three latter symptoms are owing to the compression of the parenchyma, which was never more felt than when the blood most abounds in it. It likewise demonstrates to us, that a disorganized pleura, filled with lardaceous tissue, and small depots of tuberculous matter, may still contain absorbents capable of a considerable action. We shall hereafter frequently observe this resorption of effusions effected during the last hours of existence, where a phlegmasia which has been obscure and languishing for a long time, suddenly becomes revived at the approach of death.

The small tubercles which have been found in the compressed parenchyma alone, appear to be the effect of the irritation occasioned by this compression; they induce us to believe, that, if the fluid of the cavity was resorbed with a difficulty proportionate to its formation, more rapidly effused, or that if other causes had concurred to increase pressure, the parenchyma would have contracted a violent inflammation, which would have abridged the duration of the disease.

The sequel of our observations will clearly demonstrate this truth. The following case is less intended for this purpose than to show the influence exercised by an empyematic collection on the heart and circulatory organs.

CASE XX.—*Chronic pleurisy complicated with a few suppurating pulmonary tubercles, and symptoms of aneurism of the heart.*—Pellegrin, a soldier in the 84th regiment of infantry of the line, aged thirty, medium height, soft and very light coloured hair, white and delicate skin, well-developed thorax, tolerably fleshy limbs, entered the hospital of Udine, on the 7th of August, 1806, for a difficulty of respiration, with cough, the origin of which he related to me a short time afterwards, as follows:

He had been sent, seven months previously, to the waters of Aix, near Chamberry, for the cure of a stiffness of the left knee, resulting from a long-neglected luxation. This man, who, for near eighteen months past, had a somewhat feeble breast, had not drank the mineral waters for twelve days, before he felt a very acute pain in the right side of his thorax, accompanied with cough and difficult respiration. He still continued the use of the

waters for two days, during which time, the pain in the breast having greatly increased, the physician who superintended his treatment relinquished the use of the remedy.

From this moment the pain and fever diminished, and Pellegrin recovered sufficiently to be sent to the depot of his regiment. He there underwent much fatigue, which was rendered more and more insupportable to him from an habitual dyspnœa and frequent returns of the pain in his side. At last, finding himself incapable of every kind of exertion, he entered the hospital, where during the first month, he presented the following phenomena only.

Face red, injected, and a little swelled; the eyes projecting and very watery; inspiration painful and a little hissing; cough frequent, deep, and hollow; expectoration copious, mucous, and clear; pulse small, irregular, concentrated, and soft, whilst a confused, extended, multiplied, but not very elastic pulsation was distinguishable over the region of the heart. The patient was unable to walk even for a short distance, without being almost suffocated and experiencing palpitations. He slept but little and coughed almost the whole night. The right side of the thorax was very painful on percussion, which caused but a slightly sonorous sound; he always inclined to the left side, and habitually lay on his back. He eat much and his digestion was good.

After a month of good nourishment and absolute rest, I perceived that his colour had considerably augmented, that the respiration was more laborious, a very frequent and long-continued cough taking place during expiration. The expectoration had become bloody, the agitation of the heart was more tumultuous; the pulse had acquired frequency and great hardness, and the skin had become very hot and dry.

I judged that the plethora occasioned by good living, had engorged the pulmonary capillaries, and that the parenchyma was disposed to inflammation. Hitherto I had confined myself to giving him pectoral demulcents, and some anodyne juleps, believing the disease was of an aneurismal character and beyond all remedies. But the inflammatory symptoms opened my eyes, and I ordered him to be bled from the arm; this induced a calm for three hours, after which the dyspnœa reappeared, although in a slighter degree. I also thought that it was advantageous to solicit

the serous secretions, and therefore I added oxymel of squills to the pectoral juleps.

Subsequently, reflecting on the progress of the disease, the particulars of which I had hitherto been ignorant of, I figured to myself that a chronic inflammation, the principal seat of which appeared to me to be in the pleura, on account of the extreme sensibility of all the parietes, and the slight sound it returned on percussion, was destroying the right cavity.

The aneurismatic symptoms appeared to me consecutive only, and produced by the development of the right cavity, which forced the heart to the left side, and pressed it firmly against the ribs.

Although all these surmises led me to predict a fatal issue, I did not hesitate to apply a blister over the sternum. This measure, and especially diet, aided by anodyne potions, containing ether and oxymel, restored Pellegrin, in the space of seven days to the state of calm in which he had been previous to the exasperation. But he remained much weaker, complaining that all the right side of his body was painful. Finding that he was in a state to bear the effect of squills, I recurred to their use, which appeared to me demanded by a commencement of œdema of the abdominal extremity of the suffering side.

From the 20th of August, to the 29th, nothing extraordinary occurred; Pellegrin gradually became emaciated; his inferior extremities became relaxed and infiltrated; the pulse slightly rose and increased in hardness in the evening; the cough redoubled in the night, and he required strong doses of opium to procure a few hours of sleep. During the exacerbation, there were copious sweats; and the redness though much less diffuse on the face, was very deep on the cheeks, which also began to grow sallow, hollow and wrinkled. The patient could no longer leave his bed; he was tormented by hunger, and if I allowed him more than a quarter allowance of light food, the inflammatory symptoms constantly menaced a reappearance.

On the 30th of August, he told me that he had been affected with diarrhœa since the previous evening. I also perceived augmentation of frequency in the pulse, a greater degree of heat, and increase of anxiety; the abdomen became meteorised; the patient complained of slight pains around the navel. I had re-

course to mucilages, rice, gruel, &c. he lived three weeks, every day losing some of his strength, from the double influence of a painful diarrhœa, and of a cough which deprived him of sleep. The appetite kept up until the eve of death; and I am willing to believe that I kept him alive for some time, by stimulating him gently when I perceived him ready to sink, and by recurring to mucilages and gruel as soon as the dyspnœa, the pulse, and the pains in the abdomen announced to me that the excitability required to be managed.

Finally, he died on the 24th of September, without a struggle, having preserved his intellect and presence of mind to the last moment. The principal epochs of his disease are; sixteen months subsequent to the invasion of the pain in the side; forty-five days after the inflammatory exasperation of the lungs; twenty-five days from the appearance of the diarrhœa.

Autopsy. *Habitude.*—Body in a state of almost complet marasmus; the right abdominal extremity alone was infiltrated; the examination of the left knee showed that the capsule was relaxed, and the synovia abundant. *Head.* Nothing remarkable. *Thorax.* The right cavity filled with a white, thick, creamy fluid, exhaling a slight odour of paste. The pleura, which contained this humour was red, thickened, and granular; it was lined as well on the lung and mediastinum as on the ribs, with an inorganic exudation of little thickness, which was wanting in several places, where the serous membrane appeared uncovered. The parenchyma, forced to the upper part of the cavity, was in a state of atrophy, reduced to the size of an apple, or common orange; it was not disorganized, but a few tuberculous points were observed in it. In the left side there was no effusion; the pleura was sound; some old and well-organized adhesions were alone to be seen there. The parenchyma nearly filled the cavity; three-fourths of its substance was crepitant; in some isolated points of its middle portion, and in almost the whole of its superior part, it presented traces of red induration, in the centre of which a considerable number of tubercles were perceptible, several of which were softened and suppurated. The *heart* was a little rounded, and as if dilated by red, solid clots, which filled its two ventricles. *Abdomen.* The peritoneum contained no serosity; stomach healthy; arch of the colon dilated by gas; its lateral portions not so. The mucous membrane of this intestine

presented a multitude of brown and even black points, with a loss of substance in its whole thickness; the intervals between these sphacelated points were red, and a little tumefied. The mucous membrane of the small intestines was red in some places only, but not disorganized. The liver was yellow, and in that state termed *fatty*.

I do not undertake to decide what part the internal use of mineral waters might have had in the production of this chronic pleurisy.* I wish only to pay attention to symptoms foreign to this phlegmasia.

The first of these symptoms which were manifested after the pain in the side, were those of disorder in the circulation; they were the effect of the collection; I convinced myself of this, by often questioning the patient, to assure myself if he had not been subject to the dyspnœa and palpitations before using the mineral waters. His replies, always negative, embarrassed me the more, as I was not yet sufficiently convinced of the chronic pleurisy to venture to attribute all the disorders of the circulation to it.

In consequence of being compressed, the parenchyma was finally phlogosed, and what was remarkable, the irritation of the sanguine capillaries was more active in the parenchyma of the opposite side, perhaps because it was not diverted by the phlogosis of the pleura.†

The symptoms of the phthisis pulmonalis manifested themselves at this epoch, forty-five days before death. It is, therefore, probable that the tubercles did not progress much, except during this interval; but death occurred before their ulceration had had the time to destroy the viscus.

The diarrhœa supervened to add to the numerous causes of destruction which weighed upon the unfortunate Pellegrin: it depended on that ulcerous phlogosis of the internal membrane of the colon, whose traces were evident on the body. We shall, at

* Among the patients whom we annually send from the Val-de-Grace to the waters of Bourbonnes-les-Bains, or to Barège, there are always found some in whom these stimulants occasion pectoral or abdominal phlegmasiæ, or apoplexies; oftentimes these waters also increase the progress of hypertrophies of the heart, and convert them into aneurisms.

† The lung which is not compressed, becomes excessively developed to supply the place of the other, and inflamed at the most irritated part, that is, in the mucous membrane, and the parenchyma. The development of this complication, which ends fatally, is very evident.

present, confine ourselves to remarking, that this lesion, and the symptom it induced did not exist in Allard, (Case XIX.) We shall hereafter see how these final diarrhœas termed *colliquative* must be viewed.

Let us continue to exercise ourselves in properly distinguishing the symptoms of protracted pleurisy, by studying a case, in which this disease was the only lesion of the thoracic cavity.

CASE XXI.—*Simple chronic pleurisy, with a circumscribed purulent collection.*—Rau, a conscript, entered the hospital of Udine, towards the middle of April, 1806, stating that he had been sick for thirty days, and had been taken ill on the march. He arrived from France, and was destined for the eighty-fourth regiment, in garrison at Udine. This young man was tall, hair of a deep chesnut, chest well developed, muscles rather small although strong; his adipose tissue was effaced, and he had all the characters of what is termed the *bilioso-melancholic* temperament. At first, on his arrival, I observed cough with redness of the cheeks, and a fixed pain in the lower part of the right side. He also had diarrhœa, and the fever was high.

When interrogated as to the invasion, the young man could not give me an exact account of all that he had experienced; he merely said that the pain in the side and the cough had existed from the first moment of his disease; that in a short time he was obliged to avail himself of the vehicles which transported the baggage of the conscripts, and that in this way he had traversed a part of France and Italy to Udine.

I put him on the use of mucilaginous drinks and pectoral juleps, and in the space of from eight to ten days I several times used a blister as a rubefacient on different parts of the thorax, always as near to the painful part as possible.

At the end of this time, the fever subsided, the diarrhœa diminished; but the cough remained the same, and the pain in the side, although less troublesome, did not disappear.

At the time that the acute state was calmed, the appetite was regained. Believing then, that the principal indication was to restore the strength, I granted him rather more succulent food, and permitted him the use of wine. On the 30th of April, Rau appeared convalescent. On the 2d of May, the cough became

exasperated, and the diarrhœa threatened to return; the pulse and the heat were increased. Diminution of food, return to the mucilages. In two days the calm was re-established.

From the 5th of May to the 8th of June, which was his last day, Rau presented the following phenomena:

Return of strength to such a degree that he could walk about, good appetite, no frequency of the pulse, good colour, but nocturnal cough, and, from time to time, whilst walking or coughing, the pain in the side was felt.

Towards the 20th of June, having been on half allowance for several days, frequency of the pulse, augmentation of the cough, increased pain, appetite weakened, sleeplessness.

I diminished the food, and gave him opium in the evening:—alleviation. The opium became so necessary, that without it the patient could not hope to sleep.

The little strength which Rau had regained was destroyed by this exasperation; he could no longer stand; all his body became frightfully emaciated; but by aid of the opium, and by taking care to give him only a little soup, rice, jelly, or gruel, he did not complain of any thing except of the gradual diminution of his strength. His face never lost its freshness; it was always of a clear red, which became deeper on the cheeks after eating, and especially in the evening, a period when the pulse generally acquired a little frequency.

The diarrhœa, which the food had again induced, disappeared under the regimen and a few spoonsful of sweetened wine.

The beginning of June I perceived a disposition to œdema. The appetite was prodigious; the half allowance scarcely sufficed him, and no longer caused diarrhœa or acceleration of the pulse; he appeared to be habituated to the cough and pain in the side, which caused no trouble, at least no visible trouble in the respiration. But the progress of the emaciation of the superior parts, the increasing swelling of the abdomen and inferior extremities, and the absolute loss of strength foretold his approaching dissolution. Two days before it took place, it was preceded by a copious diarrhœa and an extensive erysipelas of the right thigh, which was very painful. This inflammation became livid and yellow, and the day after its appearance, it was gangrenous. The patient entered into a comatose agony with slow respiration, which

carried him off in about twelve to fifteen hours, the eightieth day of his disease.

Autopsy.—*Habitude.* Extreme emaciation and paleness, œdema of the abdominal muscles, sphacelus of the erysipelatous parts. *Head.* Flaccidity, serosity in the lateral ventricles. *Thorax.* The two lobes crepitant in their parenchyma, the left free. The right every where slightly adhering, by red, cellular, and fragile tissue, except at the external side, where it was separated from the ribs, to form a cavity which contained nearly a pint and a half of very white pus, very turbid, somewhat viscous and inodorous like cream. This abscess was circumscribed by the pulmonary and costal pleura, which was every where lined by a caseous and very thick exudation, under which the membrane was seen thickened and injected. The parenchyma of this side was evidently redder and denser than the other, but still crepitant. *Abdomen.* Much lemon-coloured serosity in the peritoneum. The intestines and stomach contracted, but all their membranes healthy and not injected. All the rest in a physiological condition.

Observations.—It would be difficult to find a more striking example of simple pleurisy. This was not marked at its commencement; but it did not acquire an extreme violence, because the phlogosis was limited. If the pain always maintained its seat and its primitive character, is it not because the product of the phlogosis always remained confined to the same spot? The extension of pleuritic points, which weakens, necessarily alters, and finally dissipates them, as we have already remarked, will then be a very bad omen, when the cough and the dyspnœa last so long as to create a doubt as to the complete cure of a phlegmasia of the chest.

The parenchyma was a little compressed in Rau, no tubercles were developed, and no red induration was formed. Hence the hectic fever was so slight, that after the acute stage it did not again appear, unless the patient indulged his appetite too much. From this circumstance it might be attributed as much to the extreme susceptibility of the gastric passages as to the plethora of the capillaries of the lungs, which would have been indicated by a much greater dyspnœa. I infer from it, by the same reasoning, that this soldier had been rather worn out and the marasmus induced by the vice of the assimilating force than by the disorga-

nization of the organ of respiration.* But all these truths could not have been properly appreciated except by an observation of relations. I will therefore continue the exposition of facts which I believe best calculated to furnish materials for it.

The case I am about to give, also presents a simple chronic pleurisy, the commencement of which was marked by pain, but this pain was not similar to that we have hitherto spoken of, and the post mortem examination perfectly explains this peculiarity. The remainder of the symptoms are not less worthy of the attention of physiological physicians.

CASE XXII.—*Chronic pleurisy with sanguineous effusion.*—Bourgeois, aged twenty-two years, complexion dark, stature very tall, but bent by a curvature of the spine, chest large, limbs long, muscles but slightly marked, complexion pale and dull, had suffered for three months with a complaint in the chest, when he was sent from another hospital to that to which I was attached at Udine; he had at first been attacked at Venice, with a cough accompanied with acute pain of all the anterior and superior part of the chest, and a very high fever; he seldom expectorated, and never blood. These symptoms subsided after several days treatment, and Bourgeois rejoined his corps. But the progress of the cough, which had never entirely ceased, obliged him to enter the hospital of Udine, the beginning of February, 1806. From the commencement of his continuance in the hospital, his catarrh appeared to me accompanied with heat of skin and hardness and frequency of pulse; but all this was well marked in the evening only. The patient coughed much at night, and could not expectorate; the appetite was very good. I treated him by pectoral drinks, blisters, a little opium in the evening, and a farinaceous and gelatinous regimen. At the end of a fortnight he said he was much better, and every thing indicated it; he eat a half allowance without injury.

During the night of the 27–28th of February, a violent gust

* The experience that I have acquired since this observation, does not permit me to doubt that Rau had a gastro-entero-colitis; but its long continuance had caused a loss of its redness, and changed it into a slate-brown colour; but I was then unacquainted with the value of this pathological sign. Without doubt, also, the revulsion caused by the erysipelas had contributed to render the intestinal mucous membrane paler.

arose, accompanied with snow, which blew open and broke several windows in the ward in which he was, and in spite of all the precautions that could be taken, Bourgeois was very violently affected by the cold.

From this moment the dyspnœa was renewed, and the respiration was laborious; the pulse became active, frequent, and small, but the skin was only slightly heated. Bourgeois appeared in a state of the most painful anxiety; he lay on his left side, his head and knees flexed, never changing his position, coughing much, and not being able to expectorate.

Slightly diaphoretic, tepid drinks, aromatized and opiated juleps and blisters were at first lavished on him with very little success; for in seven or eight days it was seen that the hands, feet, and eyelids became infiltrated; the skin cold; the anxiety, nausea, and debility rendered him indifferent to every thing that passed around him.

Nevertheless, on the 10th of March, the countenance appeared better; Bourgeois sat up, and asked for food. As he coughed continually, and respiration still was attended with a painful elevation of the thorax, I did not think it right to satisfy his appetite; he was limited to soup, rice, &c. and the antispasmodic, demulcent, and slightly diaphoretic treatment was continued.

From this time to the beginning of April, habitual dyspnœa, heightened and laborious respiration, dry nocturnal cough, frequent but very concentrated pulse; the development of the artery being scarcely sensible, no heat, œdema of the face and extremities, great appetite, but little diminution in the volume of the muscles. This intractable patient procured food for himself as often as he was able. Finally, on the 3d of April, a diarrhœa, which hastened the decay, and general paleness.

On the 12th, he died in agony, with a slow laborious respiration, five months after the first invasion, and forty-three days after the relapse.

Autopsy.—*Habitude.* Marasmus far advanced, infiltration slight, muscles but little coloured. *Thorax.* The two lobes, and particularly the right, compressed by a red serosity, which had deposited large clots of blood of a dark hue, and very firm consistence, on the pleura of the posterior part on which the body reposed.

Both the parietes and parenchyma of the pleura were thicken-

ed, red, studded with tuberculous granules, and lined with a yellowish exudation, which was perceptible on the removal of the coagulated blood. The right lobe, which was the most compressed, was not indurated; it contained much air, and a yellow serosity, which flowed out in great quantities on the lung being divided; it appeared to come from the inter-lobular cellular tissue; 1st, because it was most abundant around the ramifications of the bronchiæ; 2d, because there was to be seen a series of cellular tissue, resembling the pulp of an orange, which made several turns in the substance of the lobe, and which, on being cut, furnished much serous fluid.* Except this, the division of the parenchyma afforded no blood, even when the large vessels were divided, whilst the cavity was inundated with it. The left lobe was less compressed, and less serous than the right, and many bronchial glands which had become tubercular, were to be perceived in it, some of which were even hollow at their centre, around them the parenchyma was hepatized. *Heart* small and rounded. *Abdomen.* Liver voluminous, apparently dilated with blood.

Observations.—Was not the acute pain experienced at first in the superior part of the chest, the effect of the phlogosis of the serous membrane?

Double pleurisies are rare, and very little has been said respecting them. Thus, we are not led to suspect this phlegmasia except when the patients complain to us of a single, fixed, and circumscribed pain in one of the sides of the thorax. But if the two pleuræ be attacked at the same time, if they be so throughout their whole extent, ought the pain to be as pungent and limited as it was in the pleurisy of Rau? Should not the extension of it in its passage from the acute to the chronic state, which we have seen take place in the example of the sergeant, in whom the serous membrane of the heart partook of the phlogosis of that of the lungs, rather lead us to presume that the pungent and limited pain corresponded to a circumscribed spot of inflammation, and the general pain to a phlogosis spread through the whole extent of the membrane? This question requires new elucidations.

The protracted duration of a cough without expectoration led

* This tissue could have been but an inter-lobular pleurisy. I am sorry not to have verified it at the time; but I now presume it to be so.

me to think that the pleuritic phlogosis still existed, when Bourgeois was admitted into the hospital of Udine; but was he about to recover when the cold caused the attack from which he appeared to perish? To reply in the affirmative, would doubtless be somewhat rash. It is difficult for us to conceive that a pleurisy can be curable, when the two inflamed surfaces are separated from each other by the interposition of a lymphatic exudation, partly dissolved in the serosity, or by clots of blood. But, on the other hand, what assures us that the pleural cavities in Bourgeois were in this state, before the storm which was so fatal to him? It is generally admitted that inflammations of the pleura cannot cure themselves except by means of an adhesion. Is it not probable that this adhesion is the product of the organization of the matter which is excreted at the moment when the irritation begins to diminish? Have we not found all the degrees of organization of which this matter is susceptible, in the different bodies, the post mortem examinations of which have been detailed in the account of chronic catarrh? Melkum, (Case V.) had in the right pleura dense and very solid membranous bands, as are very often remarked in subjects who have not died of a disease of the chest; and in the left pleura, productions which were of a gelatinous appearance, but already cellular, red, affording serum when they were compressed, and leaving vacuities between them, which were filled with that fluid. These new tissues were elongated, to accommodate themselves to the depression of the lung. In Cario, (Case II.) the same disposition, and no trace of organization was any longer perceptible in the places where the exudation did not communicate between the pulmonary and costal pleuræ. In Thiberge, (Case VII.) the new exudation was to be seen in the intervals which were met with between the old bands. In the body of an individual named Cotin, who sunk under the double influence of a chronic pleurisy and a violent dysentery, I found the right lung of the size of the fist, and, consequently, widely separated from the ribs. Nevertheless, it still communicated with the costal pleura by red, cellular, porous bands, several of which were upwards of four inches in length. They were still soft, easily torn, and in pressing them I caused a flow of serosity similar to that from concretions of the heart which have had time to become organized.

May it not be deduced from all these facts, that a liquid ex-

udes from the free surface of the inflamed pleura, which at first presents the external characters of gelatine and albumen, and is destined to serve as a medium of union between the two contiguous faces; that this fluid, in concreting, acquires a true organization, and ultimately resembles the membrane with which it is confounded; that in this way are produced the majority of those bands which are so often found in the bodies of persons who did not die from a disease of the chest?

The fathers of the art have expressed this opinion a long time since. Several physicians of the school of Paris who devoted themselves to pathological anatomy, have verified this tendency of inflammatory exudations to become organized. M. Bayle has spoken of it in the most positive manner. Baillie, an English physician, has demonstrated it, in a work filled with representations of pathological anatomy of an exceedingly interesting character; it is consequently impossible any longer to entertain doubts on the subject. I therefore would not have troubled myself to collect my own cases, if I had no other design than merely to add to the facts which we possess. But I wish to deduce conclusions from them tending to reform the therapeutics of pleurisies.

To be fitted to become well-organized, the product of the inflammation ought to have certain qualities which are dependent on the action of phlogosed capillaries; but at the same time it is very certain that it cannot be perfectly converted into a living tissue, if the morbid irritation of the pleura does not cease. When it continues, the fluids are exhaled in a proportion which no longer permits the absorbents to maintain the equilibrium; the two previously united surfaces are separated; the new tissue, still tender and fragile, begins by yielding, as we have observed in several bodies, but more especially in that of Cotin, and ultimately becomes entirely broken up. As soon as it does not communicate between surfaces, it loses its attributes of organization; it now appears under the form of a false membrane: it soon becomes decomposed; one part is dissolved in the fluid portion of the exudation; the remainder, still adhering to the pleura, can but act the same part as a foreign body which prevents adhesion, and the disease becomes incurable.

If the healing and incurability of serous phlogoses must be thus explained, it is evident that the number of curable chronic

pleurisies must be infinitely small. Does it not appear, in fact, that every protraction of the phlogosis must necessarily produce the accumulation that is dreaded? Let us take care, however, not to draw our conclusions so hastily. Is it then impossible that the equilibrium between the exhalation and the absorption should be kept up for some time during the chronic state? I admit that this would be difficult. But in the article on the treatment I will state the reasons which have led me to believe in the curability of certain pleurisies of long standing. In the mean time, I may remark that that which existed in Bourgeois appeared about to terminate favourably when he suffered from the cold. Why then may I not suppose that the already commenced organization of the exudation had been suddenly interrupted by the hæmorrhage from the serous membrane. It cannot be doubted that this species of hæmorrhage must be long subsequent to the inflammatory action that produced the false membrane, which is found immediately covering the pleura; the symptoms observed from the chill are of a nature to indicate hæmorrhages. In fact, the patient was insensible, without colour, without heat, and almost without pulse; and after having passed some days in this state, he was seen to revive and ask for food. Is it not, therefore, probable that the hæmorrhage occurred during these ten days of torpor; that its cessation permitted the pulse to regain a little of its strength, and that that labour of the respiration which ceased only with the last breath, was the effect of the effusion?

It may be objected to the curability, which we have supposed to be possible before the hæmorrhage, that the tubercles observed in the tissue of the pleura were an obstacle to the cure. But it must first be proved that they could not have been developed subsequent to the chill. I postpone the consideration of this question to another time.

The inspection of the body of Bourgeois appears to me to be also calculated to confirm one of the truths which I have laid down in a general manner; namely, that the irritation is liable to persist in the tissues in which it arose. The already phlogosed pleura becomes a substitute for the skin benumbed by the cold, and the mucous membrane is not thereby diseased. The parenchyma of the side where the hæmorrhage was the most copious was not in the least inflamed, and contained only serosity and gas; whilst that where the pleura had suffered less, presented

some points of red induration round the tubercles which were developed in it.

All the pleurisies that we have hitherto examined were independent of other diseases; we will now give several which were complicated with intermittent fever. We shall always recognise a uniform character in them, as we have observed with regard to catarrh, and whilst remarking the shades and varieties of this serous phlegmasia, we shall acquire new data to enable us to appreciate the influence of febrile chills on the capillaries of internal organs.

CASE XXIII.—*Chronic pleurisy complicated with an intermittent fever.*—Chenevois, aged twenty-two, dark complexion, meagre, but little muscular, very sensitive, having the arterial system* very active, had been affected with a tertian and quotidian intermittent fever for five months. From the commencement he had felt a fixed pain in the left side of the thorax, extending to the iliac region. This pain was slight for a long time, and did not become distinctly marked except during fatiguing exercises: hence the patient paid but little attention to it. He, however, habitually coughed and could not expectorate.

Ten days after the fever had left him, the pain suddenly became exasperated. There were at the same time reiterated efforts to cough, checked by the pain; an impossibility of lying on the diseased side or on the back, and a continued necessity for sitting up.

After fifteen days of this state, he was transported in a cart to pass in review with his regiment, which redoubled his sufferings. The next day, he entered the hospital of Udine, the 4th of June, 1807, about the end of the sixth month of his disease. I observed:—Dyspnœa, interrupted respiration, dry cough, skin dry and harsh to the touch; pulse active, hard, and frequent; pale complexion, with circumscribed redness of the centre of the cheeks; restlessness. The pain was so acute that the patient could not bear percussion.—Regimen and antiphlogistic medicaments; eight leeches on the painful part: these last produced an abundant evacuation of blood, after which the pain almost disappeared. But as the other symptoms persisted, and the pulse acquired much hardness

* That is to say; the heart.

in the evening, I drew six ounces of blood, which produced a great diminution of the symptoms. The following days, the demulcent drinks were continued, and cataplasms were applied, which caused a total disappearance of the pain in the side. Percussion could then be made, and I convinced myself that the right side returned a very clear sound, whilst there was no resonance whatever in the left.

The 23d of June, nineteen days after his admission, he had no vestige of the pain in his side; he coughed much less, he expectorated a little, and with tolerable ease. The pulse, still very frequent, was much less hard, and less active; the heat of the skin was much diminished. The anxiety and restlessness had disappeared a long time since, he neither complained of compression nor of suffocation, nevertheless his complexion was somewhat livid and venous,* the chest dilated itself with a kind of convulsive effort, there was now not as much resonance on percussion in the right side; a disposition to tumidity and an elevation of the abdomen in the evening, with constipation, were to be remarked. Some diuretics were added to the demulcents; boluses of opium and ipecacuanha.

The 14th of July, Chenevois began to emaciate, to grow weaker, and the swelling to abate, but said he was very well; but still frequency of the pulse without heat. Neither side of the chest returned any sound on percussion. Diminution of the appetite, slight diarrhœa, ecchymosis of a scorbutic appearance. Tonics, diuretics, wine, demulcent and nourishing diet.

The 17th, infiltration considerable. Nevertheless, the frequency and heat are increased, but little sleep, difficulty in urinating, alteration of the physiognomy.

The 18th, calm death, seven and a half months after the invasion of the disease.

Autopsy.—*Habitude.* Universal œdema, and nevertheless the muscles still tolerably red and not much diminished. *Thorax.* The two lobes collapsed and considerably diminished in size; the cavities filled with a sanguinolent liquid containing fibrinous clots. The right lobe was forced backwards and inwards against the mediastinum and upwards under the clavicle. The left ad-

* This colour was not the product of an obstacle to the course of the blood, but the effect of a chronic gastro-enteritis.

hered to the thoracic parietes in front. The pleuritic phlogosis had occurred posteriorly, and the collection took place there. The liquid rested on the diaphragm, which it had depressed considerably below the last true rib, so as to form a very prominent pouch in the abdominal cavity. The posterior and inferior portion of the sharp edge of the lobe was thrown upwards and nearly destroyed by the pressure of the effused fluid. It appeared to have been the nucleus of the phlogosis, judging from the thickening, the redness of its serous membrane, and the thickness of the exudation with which it was covered. *Abdomen.* Slight redness in the gastro-mucous membrane; deep red approaching to black in that of the colon and cœcum. Some lumbrici in the stomach.

Observations.—In this case the pain was insensibly developed: hence it did not excite any particular febrile action. The intermittent fever was for a long time the principal disease;* but, finally, either from the remedies having destroyed it, or from the progress of the serous phlogosis having sufficed to change the order of organic actions, this phlogosis alone remained.† It was still latent; but scarcely had the patient began to repair his losses, when it took advantage of this restoration, and assumed the acute character.‡

The antiphlogistic treatment calmed the symptomatic fever; the topical applications removed the pain, and the most striking signs of the pleurisy no longer existed. But the frequency of the pulse, the obtuse sound of the chest, the laboriousness of the respiration, and the alteration of nutrition, teach us that the phlegmasia still existed.

On the contrary, it extended and was propagated to the opposite side, which presented no sign of disease, until the time when percussion announced to me that it was deeply implicated. The mucous membrane of the colon soon participated in the irritation, but the forces were weakened: hence the recently attacked tissues did not offer any resistance, and these phlegmasia resembled that of anthrax and malignant pustule.§ The pain of a

* It depended on a gastro-enteritis.

† It was accompanied with gastro-enteritis, which persisted notwithstanding the disappearance of the paroxysms.

‡ The gastro-enteritis was equally exasperated.

§ Like that of all much enfeebled individuals.

viscus which had not seemed to suffer, and the derangement of its function, were all that were sensible in a patient a prey to a chronic affection. But the physician who has observed and calculated every thing, soon foresees either gangrene of the irritated part, or at least a collapse which gives rise to disorganization.

Thus the phlegmasiæ of the pleura, as well as those of the parenchyma, may insensibly commence during the existence of another disease, suddenly acquire great intensity, then relapse into an obscure and latent state: thus, they always preserve the same character whether they are simple or complicated: and the pain always corresponds to the degree or extent of the phlegmasia. Let us dwell a moment on this point, as it eminently affects the diagnosis of our disease.

The pain in the side manifested itself so low down in Chenevois, that it might have been supposed to be abdominal or taken for a variety of rheumatism. It is now proved that it must be referred to the abdomen, as the diseased pleura, depressed by the pus, corresponded to the iliac region. Those pleurisies which commence by the posterior and inferior portion of the cavity, present this phenomenon in the greatest degree. How can we believe, in fact, that the pain can be referred to seats that are generally assigned to it in the description of acute pleurisy, when it is excited only by a point of irritation limited to the sharp edge of the lobe and to the corresponding part of the diaphragmatic pleura? Every inflammatory nucleus extends itself in a radius of greater or less extent; if then the abdominal viscera or the nerves of the semi-lunar ganglions* are irritated by the vicinity of the pleurisy, the pain cannot fail to be felt in the abdomen.

We would make the same remark as respects incipient peritonites which have their primary seat in the neighbourhood of the diaphragm. These reflexions already make us feel sensible of the importance of carefully examining the state of the functions, before assigning a seat to obscure and deep-seated pains occurring in regions of our body where several organs are in contact.

I will also add, before leaving this subject, that pleurisies which arise in the lower part of the lungs, are sometimes occasioned by

* Nothing proves that these nerves are endowed with sensibility, if we believe experimenters; but the viscera also have nervous chords, derived from the eighth pair.

contusions or strains. I have often met with these painful stitches in soldiers who worked at fortifications, and I have more than once seen them degenerate into true pleurisies. May it not be assumed, that if the paroxysms of intermittent fever can wound the serous membrane of the chest, this ought more particularly to be in the posterior and inferior part, a spot where the pulmonary lobes become thinner, to adapt themselves to the space between the ribs and the liver, or to that between the ribs and the spleen and stomach? Does not the swelling experienced by the parenchyma during the febrile chill, expose the pleura to be over-irritated by a friction to which it is insensible when the lung is in its state of usual softness? I limit myself to the proposition of this question. We shall see if the following cases will render the solution of it possible.

The succeeding case may perhaps contribute to it.

CASE XXIV.—*Chronic pleurisy succeeding to tertian fever.*—Roland, aged twenty-two, very light complexion, skin ash-coloured, flesh flaccid, extremities of the bones voluminous, skeleton irregularly developed, had always been subject to a cough, especially on the approach of winter. He was attacked with a tertian intermittent fever on the 15th of October, 1806, and four days afterwards he entered the military hospital of Udine, in my department.

Each paroxysm was accompanied, during the chill, with a violent cough, which disappeared during the hot stage; but, towards the tenth day, a permanent pain in the left side of the chest was added to it, which rendered the paroxysms more painful.

As at this time the bark in the hospital was of bad quality, this patient was treated by bitter drinks, and potions made with ether and laudanum. The fever gradually subsided, and entirely disappeared on the 20th day of the treatment. But the pain in the side continued. A deep cough, without expectoration, and with a sound imitating the bubbling of a liquid remained. It redoubled in the night, with frequency of the pulse, heat of skin, and redness of the cheeks; there was also hoarseness, great difficulty in speaking, and a feeling of suffocation. Roland was put on a slightly opiated demulcent treatment, a farinaceous and light diet: a blister was applied to the chest.

The 20th of November, (the twenty-ninth day of the fever, the twenty-fifth from his admission into the hospital, and the twelfth or thirteenth from the appearance of the pleuritic pain,) the face appeared tumid, without diminution of the other symptoms.—I added oxymel of squills, and kermes mineral to his gummy drinks. The regimen was continued.—The frequency of pulse and the heat ceased during the day, and there only remained a nocturnal febrile action, with exacerbation of the pectoral symptoms. The patient could not lie on the painful side.

The 25th, increase of the febrile action, venous injection, and tumidity of the face. Suppression of the excretions.—Diet; return of calm.

The 29th, œdema become general, embarrassment and difficulty of respiration, with a feeling of pressure and imminence of suffocation. He was allowed milk as his sole nourishment. Reckoning from the 1st of December, unexpected amelioration.—But on the 5th, extinction of voice, considerable progress of the infiltration; the febrile action was scarcely perceptible, and the patient found most ease on his left side, this continued to be the case to the last moment. This side never ceased giving him pain, and returned no sound on percussion.—Slightly exciting potions.*

The 10th of December, and the succeeding days, return of the febrile action; increase of the cough; thick, rounded, opaque expectoration; redness of the cheeks; violent and copious diarrhœa, which incessantly harassed him. Could speak in a whisper only, and with much difficulty; disappearance of the œdema, which is replaced by marasmus. Mucilaginous demulcents, milk, opium. Much better, and entertains hope. The 14th, expectoration sanguinolent, debility extreme, œdema of the extremities, diminution of the reaction; he is incessantly tormented by the bubbling and deep cough.—Tonics, opium.—He expired in this state, the next day, about the second month of the fever, and the fortieth day after the invasion of the pain in the side.

Autopsy.—*Habitude.* Very considerable marasmus, but little effusion of serosity. *Head.* Engorgement of the capillaries of the pia mater, which had exuded a rosaceous sanguinolent fluid.

* I would now abstain from them.

Thorax. Right cavity: every thing perfectly healthy. Left cavity filled with a sero-purulent liquid. The lung forced to the upper part of the thoracic vault, reduced to the size of a large orange, indurated, containing tubercles around the ramifications of the bronchiæ, which appeared to me to be bronchial glands. They were reduced to a white pulpy state, but none of them were empty. The internal membrane of the trachea red, and even black, from the inferior half of this canal, whence it could be followed into the two divisions of the bronchiæ. *Heart.* Healthy. *Abdomen.* Some isolated red patches in the intestinal mucous membrane. A layer of white mucus, forming a kind of false membrane, which lined the interior of the stomach, whose tunics were a little injected. The mesenteric glands of an enormous size, and tubercular.

Observations.—This case is marked with this peculiarity, that the pain in the side occurred in the febrile chill, during fits of coughing, which never fail to occur at this time, as if it had been the effect of these symptoms united.

From a comparison of this case with the preceding, it may be deduced, that if the agitation of the mass of the blood were more violent, it arose from the great compression of the lungs, as the collection was more rapidly formed. For this reason also, the cough was more frequent, and the tubercles sooner developed, and reduced to a state of putridity. The injection of the face, which always presents itself in company with the œdema when the parenchyma is more compressed than phlogosed, was also evident in this case. The *summum* of the disease was marked by a recurrence of the phlogistic action in tissues which had hitherto been exempt from it, the hoarseness and pain in the throat announced the consecutive phlegmasia of the tracheal mucous membrane, and the diarrhœa, that of the mucous membrane of the colon. These inflammations were no sooner formed than they passed into gangrene, as we have already remarked in other cases.

Finally, if the treatment be recalled to mind, it will be seen that this patient did not obtain relief except from diet, aqueous and mucilaginous medicaments, and narcotics.

I will now offer a case of pleurisy which appears to have been produced by the same causes as the preceding, but whose march

was considerably modified by a complication with gastric phlegmasia.*

CASE XXV.—*Chronic pleurisy complicated with gastritis, following an intermittent fever.*—Bazin, aged thirty, hair chesnut, tall, chest large, muscles vigorous, sanguine system active and developed, entered the hospital of Udine the 31st of September, 1806, on the eleventh day of an intermittent fever of a quotidian type, accompanied with cough, anorexia, and nausea. He was vomited, put on the use of bitters, antispasmodics, and demulcent drinks, because the force of the paroxysm, the violence of the cough during the chill, and the persistent hardness of the pulse enabled me to recognise an inflammatory diathesis, which I was afraid of exasperating by the bark.†

These means were no doubt good; but they should have been aided by regimen, and the patient, too much enslaved by his appetite, could not be content with what I prescribed to him. Hence, in a few days, the paroxysms became prolonged‡ and gave the fever the appearance of a remittent. As the appetite was lost at the same time, and as the cough was still more urgent and painful, Bazin became docile; and by aid of antispasmodic potions composed of laudanum, ether, and balm water, and by some doses of bark, which I administered as soon as I thought the stomach in a state to bear them,§ the paroxysms were weakened and reduced to an exacerbation in the evening, at first with a slight chill, and soon without this accompaniment.

During the succeeding fifty days, the cough continued, notwithstanding the successive application of several blisters to the chest. The patient perceived a fixed pain in the right side. It did not take place suddenly. It first commenced during the fits of coughing, especially at the times when these were most violent, and soon became extremely uncomfortable. The anorexia

* There was gastritis in the preceding case also, but I had not recognised its symptoms during life.

† It is seen that after having obeyed prejudices, I was forced to obey my conscience.

‡ According to the progress of the gastric irritation on which they depended.

§ It is even thus that at the present day some practitioners, enemies to the physiological doctrine, ignorantly hasten to destroy all the good that they may have done.

increased in an equal degree, a continual nausea was added to it, and induced the patient several times to ask for an emetic, which I took care not to allow him. A greater or less degree of diarrhœa was always present, accompanied with colics and restlessness.

Nevertheless all the symptoms slightly yielded to demulcents, acidulated drinks, and regimen; the patient was almost without fever for eight or ten days; but towards the fifty-third day, counting from his admission, I perceived that the pulse began to become corded, that the inspiration was laborious, the cheeks suffused, and the skin heated. The patient complained of more violent attacks of coughing, always without expectoration, and of nocturnal suffocation; the pain in the side greatly increased, his face appeared sharp, the breath became fetid, the stomach refused food and even drink; in short, every thing appeared to announce that the destruction of the lungs was completed, and that the patient would soon cease to exist. In fact, he expired on the sixty-eighth day of the disease, in a very violent agony, during which he for a long time preserved his judgment and presence of mind.

Autopsy.—*Habitude.* Disappearance of the fat, muscles coloured, half-wasted, but still well-marked and resisting; no infiltration. *Head.* No morbid appearances. *Thorax.* Right lung almost reduced to nothing by an enormous collection of a seropurulent fluid of a mixed yellow and red colour, containing many yellowish white flocculi, at first sight not unlike that urine termed *jumenteuse.* The pleura thickened, red, and almost denuded of its false membrane, which was dissolved in the fluid. The parenchyma indurated, containing some small depots of tuberculous matter as if effused between its fibres, but not rounded tubercles. The left lobe somewhat gorged with blood, but free and without tubercles. *Heart.* Healthy. *Abdomen.* Stomach contracted, its parietes in contact, difficult to cut; its mucous membrane thickened, red, and black; that of the small intestines every where rather redder than in a healthy state; that of the colon affected like the stomach.

Observations.—If Bazin could have been cured it was only by the most complete antiphlogistic treatment, and early employed, in order promptly to destroy the inflammatory diathesis and to permit the administration of febrifuges in sufficient doses to

suppress the attacks, whose repetition injured the organs of respiration more and more; the gastric disorder exasperated by errors in diet, degenerated into phlogosis,* from which time the febrifuges tended but to perpetuate the general disposition to phlogosis. Hence the pleurisy furnished in a short time, sufficient effusion to cause an atrophy of the lungs; and it was to the rapidity of this depression that the last febrile exacerbation, and the great intensity of the feeling of suffocation, which rendered the last moments of the patient so terrible, must be attributed.

Do not let us forget to mention that the parenchyma contained no spherical or ovoid tubercles, but only small depots of tubercular matter; remarking that this coincides with the shortness of the disease and the good constitution of the subject. But before deducing these conclusions from it, in relation to circumstances favouring the development of tubercles, let us examine a pleurisy whose march has much analogy with that of Bazin.

CASE XXVI.—*Chronic pleurisy of both cavities.*—Joublas, aged twenty-four years, dark complexion, athletic, sanguine, large chest, short neck, was attacked with cold whilst he was much heated; the result was a frequent cough, without fever or pain, for sixteen days; on the seventeenth the fever declared itself, and the next day, the 19th of November, 1806, the patient entered the hospital.

I observed a full, hard, and frequent pulse, a continual and dry cough, the paroxysms of which reddened and even blackened the face; no fixed painful spot.—Rigid diet, demulcents, two bleedings of eight ounces, which procured great relief.—The succeeding days there was only frequency of the pulse without morbid heat, and appetite was felt.—Gruel alone was allowed. A blister on the chest.

The twenty-seventh day, anxiety, alteration of the features, exasperation of the cough, painful elevation of the ribs during inspiration; pulse more frequent, but no excessive heat; appetite keeps up; no other lesion than that of respiration.—Two blisters on the thighs; etherized potions.

*I would now say, "The gastric irritation which invites the bile, &c. to the stomach has become increased to the degree of phlogosis," and this mode of expressing the fact will be sufficient to remove any idea of emetics and tonics in a similar case, such an influence have words on the conduct of men.

The twenty-ninth day, febrile heat: it persists.

The thirty-second day, white, rounded, consistent sputa.

The thirty-third day, the respiration became bubbling; the cutaneous and pulmonary exhalations begin to acquire an acid fetidness; the rapidity of the circulation is considerable, but the heat not extreme, and the pulse neither very large or very hard.

The thirty-sixth day, death in a violent agony.

Autopsy.—*Habitude.* Body without fat or infiltration, but very muscular, firm, and well-coloured. *Head.* Perfectly natural. *Thorax, right side.* A moderate quantity of a red serosity; lung contracted a fourth of its size; slight membraniform exudation on its serous coat; the parenchyma dense and gorged with blood, but crepitant throughout two-thirds of its volume; the remainder, (the portion nearest the mediastinum and division of the bronchiæ,) indurated, and granular from the development of an immense quantity of small tubercles, among which were found three as large as a pigeon's egg, and which appeared to me to be degenerated bronchial glands; these latter were reduced at their centre to a white jelly, and one of them began to show a hollow in the middle of the pulpy matter. The whole might be removed by the point of a scalpel, leaving a cavity in the parenchyma which was in a state of red induration, for one or two inches around the large tubercles only. *Left side.* Very sanguinolent serosity, sufficiently abundant to occupy two-thirds of the cavity; parenchyma reduced to a third of its usual size. Both the pulmonary and costal pleuræ, thick, red, and covered with a gray, unorganized exudation; parenchyma not engorged, and without tubercles. *Heart.* In a healthy condition. *Abdomen.* Stomach distended, containing much food, but healthy. Liver sanguine and voluminous. The rest of the viscera healthy.

Observations.—Here the pleurisy was formed without its being suspected: we were already acquainted with many examples of this, but we had not yet seen this phlegmasia arrive at a high degree of activity, even to the point of exciting a violent fever, without its announcing itself by a pain in the thoracic parietes. I ought, however, to state, that every question which was likely to procure me an elucidation as to the precise seat of the inflammation, had been asked. I was too well aware, at the time when the patient was received in my wards, how delusive and frequent pleurisies were, and his state inspired me with too high an inte-

rest to neglect any thing that might lead me to a diagnosis. Well! I never obtained from him any thing except a declaration of a general pain in the breast. However, this does not surprise me, as both pleuræ were phlogosed.*

We have already made the same remark respecting Bourgeois, (Case XXII.) and have never failed to observe, that according to the extension of the pleurisy was the diminution of pain.†

The antiphlogistic treatment, which I pursued from the moment of the patient's admission, reduced the febrile action to a simple frequency of pulse without heat, (a state common to chronic phlegmasiæ without suppuration,) diminished the anxiety and restored the appetite and hopes of the patient; nevertheless the inflammation did not resolve. Did the debility produced by the bleedings militate against the resolution?

How can this be supposed, when we constantly remark, that according to the degree of agitation in the sanguine system in old phlegmasiæ, is the rapidity of the decay; and when we see exasperations momentarily produced by remedies or diet, destroy in a few hours the forces which the patient had regained with much difficulty in a long space of time? Let us rather say, that the seventeen days of cough without fever which preceded the admission of the patient, were in fact fatal to him; that from the time of his admission the accumulation of the product of the phlogosis in the pleura, had already rendered the organization of the exudation impossible; that the compression experienced by the parenchyma, and the violent shocks caused by the fits of coughing, had disposed his lymphatic fasciculi to disorganization; that the tardy but violent exasperation which determined him to enter the hospital, completed in a few days the disorder which perhaps was as yet but prepared to take place.‡

The calm of a few days which succeeded to the amelioration procured by the treatment, was constantly accompanied with a fre-

* I am inclined to believe that the inflammation commenced in this subject in the mucous membrane; that in irritating the parenchyma, it produced tubercles in it, and that finally it reached the serous membrane, in the same manner as chronic gastro-enteritis sometimes occasions a consecutive peritonitis.

† In these cases, if the disease be acute, routine practitioners do not fail to declare it *an essential fever*.

‡ These are only conjectures, and I now prefer that of the note to page 186.

quency of pulse without heat. This hectic of pain, depended on the compression of the lungs; its intensity marked the progress of the effusion, and ought, as well as the convulsive elevation of the ribs, to have presaged the approaching disorganization of the respiratory parenchyma. Thus life ceased in the midst of the most painful agonies, before marasmus had occurred in the patient.

Hence, in chronic phlogosis of the chest, the continual and bubbling cough, the sensation of compression, the venous tint of the face, and the frequency of pulse, announce that the extent of the respiratory surface very rapidly diminishes; and these lesions have hitherto appeared to us as corresponding rather with the pleurisy than with primary phlogosis of the parenchyma.

After having fixed our attention, for a few moments on two pleurisies as obscure, but still slower in their progress, we will endeavour to ascertain what modification the consecutive phlogosis causes in these symptoms, and generally in all those we attribute to inflammation of the pleura.

CASE XXVII.—*Chronic pleurisy with an obscure development.*—Mouton, aged from twenty-two to twenty-four, chesnut hair, white skin, delicate, and tolerably regular form, flabby flesh, was attacked with a severe cough, after having been chilled, during the convalescence from a buboe, for which he had passed some time in the military hospital at Venice. Five months after this accident happened to him, he was admitted into the hospital of Udine, in December, 1806, the cough never having left him. He had not experienced any acute and poignant pain in the side, but much uneasiness throughout the whole extent of the chest, without any determinate seat. The most harassing symptom was the cough; it had been dry for a long time, but a few days past he began to expectorate white and thick sputa. He could not long remain lying on the right side, as he was not able to respire with ease in that position; and as soon as he placed himself on his left, he was tormented with the cough, which did not cease till he turned himself. He thought he felt a flow of a fluid in the right cavity of his chest when he assumed certain attitudes. The difficulty he experienced in remaining recumbent, induced him to frequently sit up, it was thus he passed most of the night, engaged in coughing, and menaced every moment with

suffocation. His complexion was of a straw colour; his body did not appear to me either infiltrated or much emaciated. He had frequency of pulse, without heat; the skin scarcely became heated in the evening. He declared that he had experienced more fever at other times; but the want of emaciation was sufficient to show that he had experienced a hectic from pain only, which had been moderate, or of but short duration.

Although the patient did not complain of any fixed and pungent pain in the side, I convinced myself, by pressure and percussion, that the right cavity was generally painful, and but little sonorous. This sign, joined to the length of the dry cough, and the feeling of fluctuation, led me to suspect chronic pleurisy. The anxiety, the violence of the cough, and the suffocation, made me think that the parenchyma suffered too greatly to permit a long existence.—Demulcents, opiates, palliatives, a mucilaginous and farinaceous regimen.

The 13th of December, eight or ten days after his admission, and the succeeding days, same symptoms: the agitation of the blood was not sufficiently great to produce morbid heat; racking cough without expectoration, which made him despair. His strength failed him, he reposed on his belly. The eyelids became infiltrated. Anorexia.—Milk diet. Opium.

The 18th, extreme debility, asthenic apyrexia, hoarseness, pain in the breast much increased: in a dying state. He expired in the night.

Autopsy.—*Habitude.* Semi-marasmus; a little infiltration; muscles half-wasted, still red. *Thorax.* Right cavity filled with a tolerably thick lacteous fluid; an inorganic white exudation, under which the serous membrane was red, thick, and granular; parenchyma reduced to the size of an orange, filled with granular tubercles, and containing some very small purulent ulcers. Left lung free, filling the cavity, hepatized, containing but a few dry tubercles. *Heart* somewhat dilated. All the abdominal viscera natural.

Observations.—This case presents, 1st, an old obscure pleurisy, whose product caused an atrophy of the right lobe, (all the above-mentioned symptoms correspond with this;) 2d, a sanguine phlogosis of the right parenchyma, which supervened towards the close of his life, at a time when the patient was exhausted; hence it could not induce heat of skin; its most marked effect was to

deprive the patient of the power of lying on the affected side; a power which was of great importance to him, as the disease of the organs contained in the opposite cavity had long prevented him from reposing on that side.

Besides, this case tends to confirm us in our idea of the danger consequent on the neglect of catarrhs, especially when they are dry, and accompanied with a violent and frequent cough; for these circumstances, in proving to us that the point of irritation is not in the mucous membrane, ought to make us fear pleurisy, or tubercles.*

I will also add to these latent pleurisies, a case remarkable for the apathy of the subject, which added to the obscurity of his disease.

CASE XXVIII.—*Chronic latent pleurisy, final gastric phlogosis.*—Klein, a German, aged twenty-two years, dark complexion, slender and delicate, entered the military hospital of Udine, No. 2, on the 8th of December, 1806, in consequence of the evacuation of another hospital, where he had remained for a long time. From the moment of his arrival, his case appeared hopeless to me. He, however, lived till the 18th of January, 1807. He passed this time constantly confined to his bed, perfectly quiet, except when he was forced to satisfy some pressing call, ate with appetite, digested with ease, but having from time to time some attacks of diarrhœa, which yielded to diet and a few drops of laudanum. He coughed much, especially at night, rarely expectorated, and then pure mucus. He complained of a fixed, but dull pain, in the left side of the breast, on which he habitually reclined, and which gave no resonance on percussion. The pulse was always small and frequent; the skin earthy and foul, was not hot to the touch. Towards the end of his life, the patient complained of an obstinate sleeplessness, with increase of cough, and imminence of suffocation. Food occasioned pains in the stomach, and I was obliged to confine him to gruel. He expired in the last stage of marasmus.

Autopsy.—*Habitude.* Considerable dryness; no infiltration. *Thorax.* The left cavity filled with an ash-coloured, viscous, ino-

* I had not yet divested myself of the prepossession that tubercles pre-existed in irritations of serous or mucous tissues.

dorous fluid; lung wasted, flattened, and closely applied to the mediastinum, its substance flabby, carneous, and without tubercles. The pleura red, thick, and covered with a white, friable, inorganic exudation, of two lines in thickness. Right lung large and free, slightly engorged, but healthy. *Heart* small, round, and wasted. *Abdomen.* Gastro-mucous membrane of a deep red, thick, and black in many places.

Observations.—The tranquillity of this patient was not interrupted, except by the gastric irritation which occurred towards the close of his life. The attacks of diarrhœa, which I always calmed by diet, had led me to foresee it for a long time.

Although very much emaciated at the time of his death, Klein was not reduced to the last stage of marasmus. The lobe whose pleura was phlogosed had been very slowly collapsed, and had suffered so little that it had not become tubercular. It was doubtless on this account that the patient had never experienced suffocation or anxiety, and that the functions had continued to be properly performed. The lobe of the opposite side had not suffered the slightest attack of inflammation, it was large, free, in short, in such a state that it would have sufficed for respiration for a long time. The patient being also naturally very slender, lost but little in size, until the invasion of the mucous phlegmasia of the gastric organs. It appears then, that if Klein had not been attacked with this latter, that he might have lived for a long time. In fact, we often see pleurises of many years standing. But did not the indulgence of his appetite contribute to his death? This may already be presumed, but let us not anticipate. I trust that the sequel of this treatise will furnish new data on colliquative diarrhœas which will not be useless either to medical physiology or therapeutics.

Klein always preferred lying on the side in which the collection existed. It may be remarked on the contrary, that many other patients preferred reposing on the healthy side. I have always observed the following circumstances as respects this point of semiology, which has long been a subject of controversy: when one of the sides of the chest becomes painful, the patient avoids lying on it. He continues to repose on the healthy side as long as the pain continues in the other; when this ceases, he changes his position and lies on the affected side only, that he may afford the healthy cavity liberty to dilate itself as much as

possible. This attitude is at that time the more necessary as the diseased lung is generally no longer fitted for respiration, when, after having been affected for a long time, it ceases to be painful.* I have very often observed, that if some occurrence again causes the pain, that the patient a second time changes his favourite position. But if the healthy side be in its turn affected, the uneasiness of the patient becomes excessive, he can no longer remain in one posture, he tosses about, harasses himself, alternately tries both sides, and remains for the longest period on that which gives him the most ease. If the disease makes rapid progress, he can no longer remain recumbent, he sits up or assumes various singular positions. All these shades of dyspnœa have not been presented in the pectoral phlegmasiæ which we have hitherto studied, but the list will be filled up when we shall notice the complication of the phlogoses we have observed with those that are still to be described.

In analyzing the cases of pleurisy we have detailed, for the purpose of referring each symptom to an organic lesion,† we have seen that the pain corresponded to the phlogosis of the pleura; that the fever with heat appertained to the acute stage, and the frequency without heat to the chronic form; that, nevertheless, the progress of the collection might bring back the fever, but that it did not become intense until the compression which was the consequence of this collection, excited a degree of phlogosis in the parenchyma. We have generally found this phlogosis, which is indicated by red induration, to be but slight; the tubercles have appeared to us to be the most common effects of compression,‡ when the disease has been slow; and the symptoms of aneurism of the heart are sooner evident in those pleurisies where the accumulation promptly occurs.

These facts have sufficiently enlightened us on the mechanism of chronic pleurisy, to induce us hereafter to presume that if the

* Whilst at rest, the diseased lung is most frequently reduced to a state of atrophy, and the corresponding ribs become depressed; whence results the inequality in the size of the two sides. But, in some rare cases, the pleuritic collection augments to such a degree that the corresponding side enlarges: in these cases what remains of the lung may present an impression of the ribs.

† It is to the irritation of organs and to its degree that we must refer them, but not to an organic lesion. *(See Examination of Medical Doctrines.)*

‡ It is the irritation communicated from the pleura to the parenchyma, and not the compression, which produced them.

parenchyma is still further inflamed, either from the effect of the constraint imposed on it by the effused fluid, or by the progress and degeneration of the tubercles which are developed in the midst of its tissue, the symptoms would assume a different physiognomy capable of making us lose sight of the principal disease.

The following case appears to me very well adapted to demonstrate this truth.

CASE XXIX.—*Chronic pleurisy with sanguine phlogosis and tubercles of the lung.*—Pion, aged 25 years, corpulent and robust, dark complexion, large chest, was attacked, after having been alternately heated and chilled in labouring on the fortifications of Osopo, near Udine, with a very intense pain in the whole of the right side of the chest, and a violent cough with a spitting of blood which lasted ten days. At the end of a fortnight, the pain and fever disappeared, but the cough persisted. Nevertheless the patient resumed his duties, which he continued to perform for seven months. At last, the progress of the dyspnœa and cough, with the return of the pain in the breast, obliged him to enter a hospital, where he remained a month. He left it, although still very unwell; but the increase of his old complaints, and the addition of a fresh pain in the side, which was now felt in the left, soon forced him to leave his corps, and he sought assistance in the hospital in which I was employed at Udine, on the 10th of July, 1807, about the end of the tenth month of his disease. He presented himself to me in the following condition: emaciation, and even already marked marasmus; chest painful on both sides, but more so on the right; cough and expectoration mucous; frequency and hardness of the pulse; œdema of the feet; no diarrhœa. I put him on a demulcent and antispasmodic treatment, blistered him repeatedly, and permitted him a few spoonfuls of gruel for his sole nourishment.

But it was all ineffectual; the symptoms increased prodigiously, and the fifth day, counting from his admission, I found him in a most violent orthopnœa. He was obliged, in order to breathe, to remain seated on the edge of his bed, in his shirt, and with his naked feet on the floor, the body stiff, the neck thrown forwards, and the shoulders raised; he coughed incessantly, expectorated but little, and then opaque matters, of a mucous appearance, and feeling as if he was every moment about to suffocate.

The pulse was accelerated, large, and hard; the skin hot; the cheeks red; the chest on percussion returned no sound on the right side, and on the left the resonance was far less than in a state of health. This terrible orthopnœa had commenced the previous evening only; it could not last a long time: towards night the patient sunk into a fatal collapse.

Autopsy.—*Habitude.* Slight infiltration, muscles still voluminous and coloured. *Head.* A little serosity in the left lateral ventricle. *Thorax.* Right cavity containing a whitish fluid which occupied a moiety of it. The remainder was filled by the lobe, which was indurated, red, and studded with miliary tubercles all of them whole. The serous membrane thick, red, and covered with a white exudation. Left cavity completely filled by the lobe, which every where adhered very strongly. Its parenchyma was almost entirely indurated, red, and full of tubercles, some miliary, and others larger; some were excavated, and others were empty, and others again had wholly disappeared, leaving small ulcers, and an abscess large enough to contain a goose egg; a very small part only of either of the pulmonary masses permeable to the air. *Abdomen.* Gastro-mucous membrane red; that of the colon offering red isolated spots, on which a few very small points of ulceration were to be distinguished.

Observations.—It is evident that the first pain in the side depended on inflammation of the right pleura, and that this pleurisy had passed into an indolent chronic state. It may also be presumed that the return of the inflammatory symptoms had been induced as much from the compression of the effused fluid as by the mode of life of the patient. The second pain in the side, which coïncided with the exasperation of the irritation, ought to correspond with the phlogosis of the left lobe. It demonstrates to us that inflammations of the parenchyma of the lungs are not necessarily indolent. But I will add, that the pain never appears fixed and circumscribed, except in cases where the phlegmasia is rapid. It was very much so in this patient; the almost total hepatization of both lobes is a sufficient proof of it. The dissolution of the tubercles, which was also very prompt, had already produced some small ulcers, which the sudden death of the patient had not allowed to produce great disorder. But an abscess of sufficient size to give the fever a particular character, already existed. Thus in this patient we have met with a hectic from pain, and

from resorption. The fever was first kept up by the inflammatory action of the sanguine capillaries, afterwards by the resorption of the pus of the ulcers; that from the product of the pleurisy could not have contributed to it, as has already been proved to us by numerous facts, and the phlogosis of the parenchyma alone could never have communicated to it the activity it possessed, at a time when the forces were much diminished, both by the pain and the alteration of the function of nutrition.

In the case we are about to present, the effects of the resorption of depraved pus are so much more striking than those of the phlogistic pain, as to show the importance of this truth.

CASE XXX.—*Chronic pleurisy, with ulcer and perforation of the parenchyma.*—Aubouin, aged twenty-five years, grenadier in the 9th regiment of infantry of the line, light hair, slender, contracted chest, high colour, experienced, on the 7th of September, 1806, a sensation of very uncomfortable general heat, particularly at night, and which deprived him of sleep. He had not yet been confined to his bed. After twelve or fifteen days of this state, a very intense pain in the right side of the chest, accompanied with a great difficulty of breathing, made its appearance. A blister was applied to the affected spot, which caused a removal of the pain in ten or twelve hours. From this time the patient expectorated freely and abundantly, but the respiration was still laborious. Two additional blisters were applied to the calves of the legs. The patient appeared to be relieved; but although he expectorated very freely, he was still incommoded by the cough and dyspnœa; he could not return to his military duties, and was several times forced, from the increase of the cough and dyspnœa with fever to enter the hospitals. The pain in his side was not very troublesome, and was tolerably severe only when the irritation was at its height. Finally, he was admitted into the hospital of Udine, where I was employed, on the 4th of December, about the end of the third month of his complaint.

At this time, Aubouin did not complain of any pain in the side; he felt very well and had a great appetite; but his strength, far from increasing, daily declined; his skin was dry and squalid on his thighs; he often coughed and expectorated without pain an abundance of slightly opaque mucus. The pulse, always somewhat frequent, became large and hard in the evening,

and the skin increased in heat. The subcutaneous fat had disappeared; he appeared to be threatened with marasmus.

I believed that he was affected with a hectic from pain depending on the irritation of the pulmonary parenchyma, and the recollection of the pain in the side led me to think that this irritation might arise from the accumulation of a fluid in the left pleura, attacked with a chronic phlegmasia. Mucilaginous demulcents, opium, milk and vegetable diet.

From the fifth or sixth day after his arrival, the fever had almost doubled in violence. Repeated percussions on the right side of the thorax returned no sound. Treatment continued.

The 16th of December, the ninety-ninth day, the expectoration more opaque, constant recumbency on the right side, progress of marasmus.—Employment of kermes, oxymel of squills, and boluses of opium and ipecacuanha; very demulcent regimen: *cibi pauci et boni nutrimenti.*

The hundred and eleventh day he coughed rather less during the night. I attributed it to the diminution of food. The diurnal hectic fever was visibly lessened. The marasmus still made a little progress.

The hundred and twenty-third day the nocturnal cough increased, and two or three days afterwards there was a copious mucoso-sanguinolent expectoration, loss of sleep, danger of suffocation; he became greatly debilitated and rapidly altered. The hectic was violent, the skin arid and burning, the cheeks very red, the breath and transpiration of a repulsive fetidness. I no longer gave any thing but some tonics and anodynes, which were incessantly required from the nocturnal pains. He always reposed on his right side. Another diminution of food from a half to a quarter allowance, which resulted in a great relief during the two succeeding days.*

The hundred and thirty-third day fresh expectoration of mucus very much mixed with blood, increased anxiety, fear of death. The frequency of the pulse was very great, but there is no longer any heat, the materials of life being exhausted.

The hundred and thirty-eighth day complete marasmus. Debility to such a degree that he could not move his limbs; pulse

* In withholding the use of tonics, I would also have procured him relief; but I had not yet *thrown off the old man.*

slow.* For two days past the mucoso-sanguinolent expectoration has not reappeared.—Wine, opium, cordial potions.

The hundred and fortieth day, loss of the intellectual faculties, and shortly afterwards of sensation, and on the hundred and forty-first, absolute extinction of the vital faculties.

Autopsy.—*Habitude.* So great a degree of marasmus, that there were scarcely any traces of the muscles. All that was perceptible, were very small, flat fasciculi of a rose colour. No infiltration. The left tibia a little bent inwards. *Thorax.* Right lung in a state of atrophy, considerably diminished in size, closely applied to the mediastinum, and leaving a very large space occupied by a liquid of a reddish yellow colour, filled with clots of the same tint, of a fibrinous appearance, and almost in a state of solution, and flocculi apparently arising from the solution of the membraniform exudation. This liquid was extremely fetid; the pleura which contained and had exhaled it, was red, black, and even sphacelated; the exudation which lined this membrane was a kind of reddish jelly, of an insupportably nauseous smell. All the effused matter having been absorbed by a sponge, and the pleural surface well washed, we remarked on the free surface of the lung, which was bathed in pus, a black spot, resulting from sphacelus of the pulmonary pleura; and on a close examination of it by M. Treille† and myself, we found a small round opening, through which a jet of pus could be forced by pressing the parenchyma. Whilst we were pressing it, another hole became apparent. M. Treille having divided the wasted and sphacelated lobe from top to bottom, we discovered a very large abscess in it, whose parietes were smooth, black, and slightly lined by a gray exudation. Another smaller abscess above, and communicating with the large one, was emptied by pressure. The fluid that was found in these ulcers resembled both in aspect and odour, that contained in the cavity. The parenchyma was soft, flesh-like, and impermeable to air; the bronchial glands were black and scirrhous, but few of them were tubercular, and none excavated in their centre. The left lung was

* When the sensibility of organs is destroyed they do not develope even organic sympathies.

† Now *Chirurgien-major* in the first regiment of cuirassiers of the royal guard, my first pupil and one of my best friends; he was a witness of most of the cases related in this work.

free and very healthy, as was likewise the *heart*. The *abdomen* presented nothing particular except a slight rose colour in the gastro-mucous membrane; the mesenteric glands were healthy.

Observations. —It has been seen that Aubouin, already weakened by chronic pleurisy at the time of his arrival, had passed some days in an almost apyretic state, without uneasiness, filled with hope, and that reckoning from the hundred and twenty-third day, to that of his death, which occurred on the hundred and forty-first, that is, during the eighteen last days of his life; he had grown worse with astonishing rapidity, and in a state of suffering very different from the calm in which we have seen individuals perish from pleurisy without complication.

It required a very powerful stimulus to keep up so intense a hectic, characterized by a full and hard pulse, and arid and burning heat, in a subject already in a state of almost complete marasmus.

We find it in the pus effused in the pleura, which, from the moment it communicated with the air cells, which doubtless took place about the hundred and twenty-third day, became a fatal poison to the economy. Introduced in the circulation by the absorbents, this pus produced an irritation corresponding in extent to the very great abundance of this fluid; for the percussion was so slightly sonorous, from the arrival of the patient, that it may be reasonably presumed that the atrophy of the lobe was already complete.

The sanguine phlogosis was so slight that it scarcely left any trace in the body; the flaccidity and permeability of the left lobe testified it, perhaps, still more than the want of irritation in the collapsed lobe, if we are to judge of it at least, by the facts above related. It consequently does not appear to me, that the perforation of the lobe ought to be attributed to this phlogosis;* I rather suppose it to be the effect of the progress of an ulcer resulting from the softening of a tubercle, if it did not depend on the gangrene observed in the serous membrane.

I have no doubt that this sanguine expectoration, so copious

* I now think differently: it is the inflammation which simultaneously produces those small abscesses which advance from the parenchyma towards the pleura, the gangrenous eschars of that membrane, and the lymphatic collections which constitute the tubercles; but the traces of inflammation would present but little redness in a subject already emaciated.

and so fetid, which recurred several times in the period I have designated, was directly derived from the cavity of the pleura; I am of this opinion because the two humours resembled each other, and because the expectoration was not constant. Have not foreign bodies introduced into the cavity of the chest by an external opening also been observed to be ejected by expectoration?

Such are the reflections suggested to me by the disease and post mortem examination of Aubouin. I was soon enabled to make others almost analogous, in examining the body of a soldier, whose case I will relate.

CASE XXXI.—*Chronic pleurisy commencing under the form of rheumatism, terminated by perforation of the parenchyma of the lungs.*—Mingot, aged from twenty to twenty-two years, dark complexion, well made, tolerably vigorous, at first felt for a month an undefined pain in the right side of the chest, with cough. In this state he became heated from carrying a burthen, and was afterwards chilled; at the same time, the pain became fixed in the lateral and somewhat posterior part of the chest, about the sixth rib. In a short time it acquired such intensity that he was obliged to enter the hospital of *Palma-Nuova*, where he was in garrison, and whence he was transferred to Udine, the 4th of April, 1807, the thirty-eighth day of his attack, counting from the period when this soldier began to pay attention to his disease.

On his arrival, he had a dry cough, laborious and sibilant respiration, hoarseness, extreme difficulty in speaking, frequent and highly developed pulse, dry and arid heat of skin, anxiety. —A blister was applied to the diseased side.* Demulcents, anodynes, regimen. The pain was removed in a few hours, the other symptoms persisted.

The fifty-fourth day he felt better, although the pulse was frequent, the face pale, the skin dry and burning, the respiration laborious, although he had diarrhœa, singular wasting of the features with a livid colour, and there was no resonance in the right cavity of the chest on percussion.—Tonics, demulcents, and anodynes.

* It would have been more advantageous to have applied leeches there.

The 26th of April, the sixtieth day, he calmly expired. Death was preceded by a cold and fetid sweat.

Autopsy.—*Habitude.* Body in a state of almost complete marasmus, without œdema. *Thorax.* Right cavity filled with a thick, yellowish fluid, containing extremely fetid caseous clots. The pleura which surrounded it was thick, red, black, and sphacelated in the greater proportion of its extent, and lined with a yellow exudation, and almost every where in a putrid state. The lobe was reduced to the size of an orange, and tuberculous, or rather presenting, when cut, two large tubercles which formed almost the whole of its volume. Both were in a state of putridity, and excavated at their centre; the smaller abscess, situated under the first rib, communicated with the cavity by a gangrenous eschar of the pulmonary pleura, which was perforated. The left lobe perfectly healthy, not even a tubercle was to be found in it. *Abdomen.* Gastro-mucous membrane a little red; that of the lower part of the colon of a deep red, and the calibre of this intestine contracted; in all the rest of the canal, meteorism, fetid gas, and here and there gangrenous spots; the mesenteric glands slightly engorged and tubercular.

Observations.—The perforation appeared to me to correspond with the period at which the hectic fever assumed a high degree of intensity, and was accompanied with anxiety and alteration of the features. The gangrene of the pleura which supervened when the suppuration of the tubercle and the progress of the ulcer had left only the thickness of this membrane between the pus of the lobe and that of the thoracic cavity, appears to me to have established the communication of the pulmonary abscess with that in the pleura. The priority of the pain in the side, as evident here as in the preceding case, the good state of the opposite lung, proved that the irritation existed in the serous membrane before passing into the parenchyma, and that the tubercles were here entirely the effect of the compression of the product of the pleurisy.* Thus far, this case does not present any thing different from what we are acquainted with, but it also contains a peculiarity of which it behoves us to take advantage, to eluci-

* This product no doubt irritated the parenchyma; but the irritation of the bronchiæ, attested by the cough, could not fail of passing to the parenchyma, which contributed to the development of tubercles.

date the history of phlogosis of the pleura. During upwards of a month, this patient experienced only an undefined pain in the breast; from the moment it assumed a determinate seat, the fever commenced, and did not cease until the forces had been entirely destroyed.

Here then is a pleurisy, which during its obscure development, might be confounded with rheumatic pains. How are these two diseases to be distinguished, when they exist in so slight a form? I have no doubt but that pains of the thoracic and abdominal parietes are thus constantly mistaken. But why seek for reasons of distinction which advance neither the theory nor practice of medicine? Is it not known that the pains in the aponeuroses and ligaments which we call *rheumatic*, are accompanied with a determination of fluids to the part, with a tendency to disorganization, and that they produce this double effect with much facility when they are propagated to the tissue of the viscera? Have we not seen that pleuritic pains act exactly in the same manner? And ought not this to put us on our guard against all constant pains in the thoracic or abdominal parietes?

The succeeding case of pleurisy, in like manner, commenced with the rheumatic physiognomy, which we remarked in Mingot; but in its progress, it became complicated with a sanguine phlogosis of the two parenchymata; this, added to the perforation of the lobe, and to aneurismatic symptoms, gives it a degree of interest that renders it worthy of being offered to the consideration of physiological physicians: hence I have been induced to include it in this work with all its details.

CASE XXXII.—*Chronic pleurisy commencing under the form of rheumatism and catarrh, complicated with symptoms of aneurism of the heart, and terminated by an ulcer of the parenchyma communicating with the effusion.*—Laporte, a dark-complexioned, tall, muscular man, but not having the thorax developed in proportion, very sanguine, active and irritable, being a conscript of an XI. found means of evading the execution of the law for two years. He was finally seized, and passed six months in a subterraneous and very damp prison, having the earth only to lie on. He there contracted a violent and obstinate cough, with sharp pains in the breast, to which he could assign no determinate seat.

Restored to liberty and incorporated in a regiment, he continued to cough and to breathe with difficulty.

Marching became more laborious to him every day; and at the end of two years and some months of military life, he could make but a very short journey on foot, being prevented by shortness of breath, and violent palpitations of the heart.

The constant increase of his complaints obliged him to enter the hospital of Udine, in July, 1806, where he was placed in one of my wards. Struck by the hollow and gurgling sound of the cough, and by the great general œdema, with venous injection of the face, I placed my hand over his heart, where I felt violent pulsations over a large space. The pulse at this time was not very frequent; the patient coughed much, and yet expectorated but little.

I suspected only aneurism of the heart. I believed that the terror to which he had been exposed, his confinement, and the cold of his dungeon, had acted solely on the central organ of the circulation.

I placed this patient on a somewhat severe regimen, made him take diuretic decoctions and drinks, and use frictions of a mixture of laudanum and camphorated alcohol on every spot to which he could apply them. His swelling decreased, and he felt his breast very much relieved, and left the hospital at the end of six weeks, apparently pretty well restored to health.

Laporte had scarcely rejoined his corps, when he found all his complaints return. He came back to the hospital, but no longer obtained any relief there.

He has since told me that too much food was given to him, which caused a continual cough, and very uneasy nights. He again left the hospital, and was re-admitted for the second time into my wards, on the 28th of February, 1807.

How much was his condition altered? It was no longer an individual whose cold and tumefied body appeared to menace an enormous dropsy. There were now to be observed, a frequent, active, hard, strong, and large pulse; a burning skin; a circumscribed redness of the cheeks, deeper on the left side; already very great emaciation; strong harsh and almost incessant cough, thick, opaque, and very abundant expectoration; sleeplessness, anorexia, uneasiness, and agitation: strong and hurried pulsations in the region of the heart. The patient complained

of an extremely troublesome painful sensation at the base of the chest.

Laporte could not indicate the precise period of the invasion of the inflammatory action.* He said, that since his discharge, his condition had continually grown worse. Nevertheless, I was able to deduce from a comparison of his answers, that the fever had not been of sufficient intensity to disorder the functions in any great degree, except for the last fortnight. As all the irritants, and even opium, augmented his sufferings, I found myself reduced to a oleoso-mucilaginous treatment and diet, in waiting for a fatal termination, of which I could no longer entertain a doubt.

The 6th of March, the fever had greatly diminished, the expectoration was hereafter of a dull colour, puriform and less abundant. Laporte had a keen appetite, but, taught by experience, he did not dare to indulge it; opium appeased it, and induced sleep.

The 11th of March, there was less frequency of the pulse, the skin became covered with scabby pustules. I did not attempt to remove them.—Demulcents. The appetite still increasing.

The 16th, pulse a little harder, very harassing anhelation: he was obliged to stop many times whilst drinking. Appetite.

The 20th March, great anxiety, suffocation; he was scarcely able to speak; a chill in the evening, an appearance of intermittent fever.—Pulse very hard. He was on a half allowance in the morning, and a quarter in the evening; I reduced it to soup and broth, alleviation. The succeeding days, greater chills.

The 27th March, after several exasperations of dyspnœa on the preceding days, and several vomitings, with a sensation of a body rising towards the throat, he ejected a lumbricus by the mouth.—Anthelmintic boluses, acidulated oleaginous potions. He felt himself much better. But he could not take food without being threatened with suffocation, and inducing a burning fever.

Some days afterwards, difficulty of urinating. A catheter was obliged to be introduced; but little urine was obtained. The parietes of the abdomen were so painful, (an effect, it appeared to him, of the fits of coughing,) that he could not bear the least pressure.

* More properly of the exasperation.

The expectoration still puriform and abundant. He could scarcely respire, and became livid; the circulation still preserved its activity. The marasmus increased.

The 9th of April, Laporte whose whole nourishment was reduced to a few spoonfuls of gruel and gummy juleps, slowly became emaciated, and no longer suffered any pain, although his pulse was still hard and frequent.

On the 10th he expired, about two years and a half from the invasion of the disease.

Autopsy.—*Habitude.* Marasmus nearly complete. No infiltration. *Thorax.* Right cavity filled with a grayish, turbid, fetid pus, and lined with an inorganic pulpy excretion, partly dissolved in the effused fluid. The parenchyma much wasted, and confined against the mediastinum, presented a large abscess on its free surface, whose parietes were thin and sunken in. The rest of the lobe, which was red and indurated, contained some dry tubercles. The whole of this lobe was not as large as the fist. Left *lung* occupying all the cavity, indurated, filled in almost every part with middle-sized tubercles, some of the largest of which were in a putrid state and partly empty. No abscess in the substance of the parenchyma. *Heart* forced to the left, and downwards towards the bottom of the hypochondrium, large and very muscular, but preserving its form, and not appearing to have experienced passive dilatation. *Stomach* healthy, containing green bile; the intestines were also filled with it, and a lumbricus was found in them. The mucous membrane was healthy throughout, and without any injection or development. *Liver* voluminous, blackish, indurated.* The serous membrane contained some small white tumours, which were found to be small depots of tuberculous matter.

Observations.—Here the pleura was not gangrenous, and the parenchyma presented unequivocal traces of sanguine phlogosis. It appears then, that the perforation of the lobe was the effect of the eroding ulcer with tubercular parietes, which indubitably itself arose from the destruction of one or more tubercles. This disease presents us with a succession of more or less anomalous symptoms, and which it may be useful to unite in a smaller compass.

* I am sorry not to have paid particular attention to the duodenum.

1st. *Symptoms of catarrh and of rheumatism of the thoracic parietes:* these were the commencement of the pleurisy. 2d. *Symptoms of aneurism:* they were occasioned by the accumulation of the product of that phlegmasia. 3d. *Symptoms of pneumonia:* a certain result of the sanguine phlogosis of the parenchyma, which favoured the progress of the tubercles. 4th. *Symptoms of the most acute phthisis:* an indubitable effect of the ulceration of the lobe of the lung, and especially of its perforation, which augmented the size of the putrid abscess by which the hectic fever was kept up.

We have seen, since we have occupied ourselves with inflammations of the serous membranes of the lungs, the symptoms and immediate effects of simple pleurisy in its different degrees of intensity and the modifications it may undergo during its continuance from the compression of the heart and lungs, from the phlogosis of the parenchyma, from its tubercular degeneration, and finally, from its ulceration and perforation. We have attributed the violence and the consumptive character of the hectic fever which we remarked in these latter cases, to the depravation of the fluid product of the pleurisy, and this depravation has appeared to us to have been provoked by gas, which the erosion of the bronchial cells introduced into the phlogosed membrane.

If our assertion be just, every inflamed pleura which may be exposed to the action of atmospheric air, would afford a pus as fetid as that we met with in the three bodies whose examination we have just given. After the perforation of the lobes, it is only by an opening in the pleural or diaphragmatic pleura that air can be admitted into the thoracic cavity.* It would be very useful to ascertain whether air introduced by one of these channels, would not exert the same effects on the membrane as it produces when it comes in contact with them through a division of the parenchyma. (I allude only to the pleura in a state of phlogosis and separated from the parietes by a fluid; for no physician is ignorant that wounds of the lung are every day cured with the greatest facility.)

The want of success of the operation for empyema is known.

* Gases may be spontaneously developed in the pleura; but they do not excite the same irritation as atmospheric air, for they are only the fluids of the spot, which have become gaseous from the heat.

This is so great that the operation is now almost universally banished from practice, at least when the effusion is the result of a pectoral phlegmasia. Every practitioner has been struck with the prodigious fetidness of pus, when the external air has penetrated into the thoracic cavity. It was difficult not to compare the opening of empyemata to that of depots by congestion, to gunshot wounds, with sinuosities and sinuses containing pus; in short, to all suppurations occurring in a surface exposed to the air and furnishing too much fetid pus to be entirely eliminated, and of which part is again taken up by the absorbents. In all these cases it is known that a cure cannot be expected, at least unless we can succeed in preventing the putrefied pus from remaining. The cases where this is possible, and the means by which this can be effected by art are also known; hence I shall not enter on these details, which however tend to demonstrate in a much fuller manner, the analogy I have only indicated. I will content myself by establishing the relation of pleurisies with perforation of the parenchyma from an internal cause, to those with perforation of the pleura from an external cause. The following case, of which I was an eye witness, has appeared to me calculated to fulfil this object, and even to shed new light on the history of chronic pleurisy.

CASE XXXIII.—*Chronic pleurisy in consequence of a sabre cut which divided the costal pleura.*—Armand, about twenty years of age, *chasseur à cheval* in the eighth regiment, light complexion, medium height, flabby flesh, white skin, received about the 1st of July, 1806, a wound from the point of a sabre, which penetrated between the sixth and seventh rib of the right side.

The blow was from below upwards. The third day an abundant flow of a sero-sanguinolent fluid confirmed the surgeon in the idea that the wound was penetrating. In fact, fever soon arose and assumed the hectic character; it did not destroy the appetite nor produce any stupor. After this first hæmorrhage, there was at each dressing a flow of sanguinolent serosity, which soon became slightly fetid. This serosity afterwards lost its red colour and assumed the characters of a very serous, flocculent, and extremely fetid pus. The transpiration and breath soon became equally nauseous. The fever increased every evening with high

colour of the cheeks. The cough was greater, especially in the evening, and accompanied with a mucoso-purulent expectoration. The face became tumid, and the extremities slightly infiltrated, especially the arm and leg of the affected side; at the same time the suppuration diminished, and the circumference of the wound became doughy to a great extent. From this time the fetidness was communicated to all the excretions.

The patient, fatigued by the length of the treatment and severity of the regimen, secretly procured food, which kept up the fever; finally, diarrhœa was added to his other complaints. From this moment, the strength declined more rapidly, the paleness and tumidity increased, the oppression of the chest appeared less, and the patient never entertained greater hopes than at the period of his death, which occurred on the 31st of August, seven weeks after the wound.

Autopsy.—*Habitude.* Semi-marasmus, slight infiltration of the left side of the body, more on the right. *Thorax.* In the right cavity we first perceived a large space between the ribs and the lung, which last was in contact with the mediastinum, forced upwards, and diminished to three-quarters its natural size. The pleura lining this cavity was red, injected, and covered with a gray, friable, inorganic, fetid exudation, resembling decayed cheese; the pus found in the cavity was grayish, serous, flocculent and very fetid. The parenchyma was indurated and tuberculous, several of the tubercles were slightly softened at their centre. They were neither numerous nor large; the greater proportion were full.

We did not perceive either in the pulmonary pleura, or in the parenchyma, any solution of continuity; a probe introduced by the wound would not penetrate beyond the purulent abscess. In the left cavity we found the pleura adhering in several places by solid and well-organized productions; the parenchyma was generally crepitant; some isolated points were found indurated, with scattered tubercles, a few of which were also suppurating; they were rather superficial than buried in the parenchyma. *Abdomen.* Nothing remarkable, except rather more redness than usual in the mucous membrane of the digestive canal.

Observations.—The sabre passing between the sixth and seventh ribs, at their curvature, had penetrated into the chest

above the insertion of the diaphragm, and between the convex surface of the liver, which was only separated from it by this muscle and the ribs. Directed upwards, it appeared to have spared this viscus, which we found perfectly uninjured. In supposing that it had reached the lung, it would have implicated the outer extremity and sharp edge of the lobe only, whether it had penetrated to the parenchyma, or had only grazed that portion of the pleura which covered it: it is very certain that it had not deeply wounded the aerial parenchyma. Be this as it may, it is evident that the first effect of the wound was to produce an accumulation of sanguinolent serosity, which could not fail in greatly compressing the parenchyma. If this collection had not been suddenly evacuated externally, the cure was doubtless possible; the fluid might have been gradually resorbed, and, if it did not occasion a phlogosis capable of keeping up the separation, if it did not leave clots on the pleura capable of producing the same effect, a salutary adhesion might have preserved the pleura from ulterior disorganization.

But the evacuation which occurred on the third day, and which was owing to the resistance opposed by the parenchyma to the compression, was followed by an artificial dilatation of the wound, which permitted the air to replace the effused matter. The presence of this decomposing agent would soon have altered and given up the product of the newly-established phlogosis to the laws of putrid fermentation, this phlogosis increased and extended itself over the greater part of the circumference of the lobe. The sero-purulent effusion becoming more abundant, and the air itself rarefied in the cavity, accomplished the collapse and atrophy of the parenchyma. At the same time the suffering of the collapsed and phlogosed lobe, sympathetically communicated to the other, and the stimulus of the resorbed pus, kept up the fever and induced the development of tubercles. Finally, the gluttony of the patient favoured the inflammation of the digestive mucous membrane, and from this time the decay of the patient proceeded with additional rapidity. All these causes united, induced in seven weeks a state of decay, which the pleurisy alone, or the sanguine phlogosis without ulceration, would not have produced in a much longer space of time.

I have collected in this chapter all the varieties of chronic

pleurisy that it has appeared to me essential to notice in order to form a just idea of it. I will now deduce from their comparison and from a summary of cases which I could not cite, (for phlogoses of the pleura are extremely common,) a general history of this disease, as I have done in treating of protracted peripneumony and catarrh.

GENERAL HISTORY OF PLEURISY.

Etiology.

All the causes, whether *predisposing* or *determinative*, that we have assigned to peripneumony and to catarrh, can also produce pleurisy, but there are some of them whose action is more particularly directed to the pleura, viz.:

1st. *Among the predisposing.*—A sanguine temperament—a state of plethora, of excessive irritability, a disposition to hæmorrhages, resulting from the suppression of an habitual evacuation, favour the action of all causes which can induce inflammation of the pleura and lungs; this is conceded by physicians of all countries and in all ages. But what they have not clearly expressed, perhaps because they have not sufficiently appreciated it, is that every actually existing inflammation is a stimulus in constant action, which disposes the body to contract a second, a third, &c. Hence we shall not hesitate to include the phlogoses of other organs, and especially of other serous membranes among the predisposing causes of pleurisy.

Narrowness of the chest, and its malformation expose individuals to pleurisy, in proportion as they are more sanguine. Nature, often irregular in the distribution of her nutritive materials, every day presents us with muscular persons, endowed with a vigorous heart, and a very energetic circulatory system, in whom she appears to have forgotten to develope the chest in proportion. The bodies of individuals thus formed often discover almost universal adhesion of the pleura, even when they have fallen victims to a disease foreign to that under consideration. But these adhesions without phlogoses, which are likewise met with whenever there has been for a length of time an afflux of fluids to the parenchyma, at least prove that it was habitually

so swelled, that any motion between the pleural surfaces had become impossible.* We shall return to this subject.

It may easily be conceived that the causes which induce irritation in an already irritated pleura, ought to operate with much more efficiency, than if they act on a subject possessed of a perfect equilibrium. These causes of pleurisy are immediate or mediate, as well as those of pneumonia and catarrh.

2d. *Among the efficient immediate causes*, those that appeared to me to be the most capable of acting on the pleura, are, 1st, blows and contusions on the chest, however produced. I have often observed old pleuritic pains depending on this cause, among the soldiers of the artillery train, and among those employed on the public works; 2d, violent exertions which suspend respiration, because, during their action, the parenchyma is gorged, and the pleura strongly rubbed against the bony parietes; 3d, violent and obstinate fits of coughing. I have already remarked, that pains in the side which appear to have been produced by the paroxysms of the cough, had degenerated into true pleurisies. Pleurisies induced by this order of causes may suddenly take place and be accompanied by a high fever; but in general they commence in an obsure manner, and do not clearly manifest themselves until they have made fatal progress; this, in my opinion, arises from the accidental lesions of the pleura, of which they are but the augmentation, being slight at their commencement.

3d. *Mediate causes*, or those which do not implicate the lungs, except by modifying an organ in relation with it,† may all act on the pleura, instead of on the mucous membrane and the parenchyma. There is no practitioner who has not often treated pleurisies supervening on a chill, suddenly succeeding to a copious sweat, or an exaltation of action in the capillaries of the circumference. It might be said that the excitation which has ceased in these vessels is suddenly transferred to those of the serous membranes. This is the cause most generally assigned for phlogosis of the pleura, because it usually gives rise to well-marked pleurisies, that is, pleurisies marked by pain in the side and fe-

* They also demonstrate that the inflammation of the parenchyma has penetrated the pleura.

† See Etiology of Catarrh.

ver. If it produce them rather in this form, than latent and apyretic, it must be from the violence of its action. In fact, it is quite natural that a great derangement of the functions, suddenly occurring in a vigorous individual, should develope a well-marked acute disease. Nevertheless, the contraction of the capillaries of the skin and subjacent tissue does not always act thus harshly on the pleura. We see pleurisies, evidently induced by this cause, which have not become perceptible for a very long time. This is particularly observable in individuals already weakened and somewhat depressed by another disease, at the time when cold has occasioned a phlogosis of the pleura in them. Perhaps in certain cases the increase of exhalation even precedes or occasions the true phlegmasia.

Causes acting on the external vessels in the same manner as cold, for example febrile chills, terror, horror, surprise, &c. will be more likely than cold air or fluids to produce latent pleurisies. It must have been remarked in the course of this work, that a majority of the pleurisies which occurred during intermittent fevers, were not perfectly verified except from the progress of the effusion. It appears to me that these fevers produce pleurisy in two modes principally, corresponding to the two orders of causes I assign to this disease: 1st, by the chill, whose centripetal influence may direct the fluids to the serous membrane of the lungs, whilst acting on its parenchyma and mucous membrane: this mode of action is analogous to that of cold air; 2d, by the convulsive efforts of the diaphragm and muscles of the thoracic parietes, which cause the exhalant surfaces of the serous membrane to rub against each other. The turgescence and capillary erection of the parenchyma, an inseparable effect of the chill, the continual fits of coughing, doubtless contribute to augment the pressure and facilitate the lesion of the pleura. But as in most cases, this lesion is at first very slight, the commencement of the pleurisy may neither be felt by the patient, nor suspected by the physician.*

* To these causes must be added, irritations of the fibro-serous apparatus, or rheumatism and gout, which, after having traversed different parts of this apparatus, become fixed in the pleura: they also attack the pericardium and even the tissue of the heart.

Development, Progress, and Termination of Pleurisy.

Development.—When pleurisy is suddenly induced in a vigorous subject, by an energetic cause, as a severe contusion of the thorax, a sudden diminution of temperature at the moment when the capillaries of the circumference are in a state of great dilatation and action, it generally commences with violence, and we may observe a chill, followed by a fixed and poignant pain in one or both sides of the chest, high fever, dry cough, interrupted and laborious respiration; in short, all the inflammatory symptoms, so well described by authors, and which it is sufficient merely to notice at this time, to mark my point of departure. But there is another shade of pleurisy, equally appertaining to the most acute form, on which I will dwell at greater length.

Although produced by the same causes, pleurisy has not always the same physiognomy. If, from the moment of invasion, phlogosis occupies the whole membrane, there is seldom a fixed and circumscribed pain; the whole chest is painful, pains are felt in different directions, oftentimes traversing the body from side to side; sometimes they are lancinating, at others dull, and at others again burning, &c. The thoracic parietes are immoveable, and respiration is performed by the depression of the diaphragm; the patient remains in a sitting posture, and leaning forwards; his features are greatly altered, the cheeks very much suffused; he dares not cough, the anxiety is considerable, and the febrile action intense.

Of all these symptoms, those which correspond in the most direct manner to the pleurisy, are the continual desire to cough, which is rendered nugatory by the pain; the immobility of the thoracic parietes; the pain on percussion; the shootings from the least fit of coughing, sneezing, &c.

When the serous membrane of the heart participates in the irritation, the symptoms are more violent, the pain is felt in the precordial region especially; there is the highest degree of anxiety and sleeplessness; the curvature forwards, and the pronation with the knees flexed when lying down, are the more remarkable; but the most striking of all is the almost total absence of fever.

Independently of these symptoms, the tendency to lipothymia has been assigned as a peculiar symptom of pericarditis. I have

myself almost always observed this symptom; but have been more struck with the concentration of pulse and the absence of febrile heat. When the two latter are met with in an individual who has been exposed to the causes of pectoral phlegmasiæ, and who is nearly in the state we have described as appertaining to pleurisy—when, above all, this person has not been exhausted by a former disease—phlogosis of the serous membrane of the heart, and pericardium is to be feared.

Progress and termination.—Acute pleurisy presents many varieties in its progress. There are some which are promptly cured, and appear to yield to remedies without going through their regular stages. These are the mildest—those in which the circumscription of the pain and moderation of the sympathetic troubles indicate that the point of irritation occupies but a limited portion of the pleura.

Others, of greater violence, increase and persist for a certain number of days, and appear to place the life of the patient in danger. But when curable, they are rarely found to produce that suffering and profound alteration of the functions we have stated to arise from phlogoses which occupy the whole extent of a pleura, and even the serous membrane of the heart. After much suffering, and an extremely high fever, we find general irritations to subside, the pain to lose its acuteness, to extend even to the shoulder, and finally, to entirely disappear in the space of from seven to fourteen days. Nevertheless, the spot where the pain in the side was felt, remains tender for a long time, and even occasions tolerably acute pangs when the patient sneezes, yawns, or when he uses violent and unusual exertions.*

The pleurisies which appeared so obstinate in the acute stage, with persistence of fever and heat, and which terminated by hæmorrhages, and an abundant expectoration, were complicated with a phlogistic irritation of the mucous membrane, or its cryptæ, and were always more or less connected with catarrh or peripneumony: I judge this by the injection of the tracheal and bronchial mucous membrane, and by the red indurations always perceptible when patients have died in the acute stage.

I do not regard any as pure or simple, except those in which the pulse is contracted and convulsive, and the heat moderate; in short,

* All this supposes the phlegmasia not to have been vigorously attacked at its commencement by local bleedings, emollient cataplasms, and vesicatories.

those in which the febrile action does not correspond to the intensity of the pectoral affection. If these become fatal in the acute stage, they may leave the lungs entirely permeable to the air. It should, however, be borne in mind, that this disproportion, of which we are speaking, may be observed in pleuro-peripneumonies complicated with pericarditis, and that then the only symptom that can lead to suspicion of inflammation of the capillaries of the pulmonary artery, is the deep red of the cheeks. This complication presents an image of the most terrible agony. I have seen fearful examples of it. The patient is then beyond all remedies.

Whenever simple pleurisy is curable, we are surprised at the good effect of remedies. I have seen the most acute pain, and the anxiety accompanying it, suddenly disappear, as if by enchantment, the instant a rubefacient application began to act. Bleeding, leeches,* an emollient cataplasm, or a bath, have often been as happy in their effects. When the fever is found to cease at the same time as the pain, without considerable evacuations, it may be presumed that the pleurisy was simple; for the symptoms are always more obstinate when they depend on a somewhat profound phlegmasia of the parenchyma. The fever particularly, persists, and does not yield except to repeated bleedings, unless it is carried off by a hæmorrhage, by sweats, or by any other critical action.

For the cure to be complete, it should take place in the first three weeks, and the functions be then promptly restored to their equilibrium. If symptoms of pectoral irritation remain, chronic pleurisy is to be dreaded. We will attempt to describe it, after having studied its development in the sources whence it most generally derives its origin.

Chronic Pleurisy.

Development.—The most common among these sources is acute pleurisy. Acute occasions chronic pleurisy when the former has been neglected, either from the too impetuous afflux of fluids preventing adhesion, or from the quality of these fluids rendering them unfitted for a medium of union, or finally, from the phlogosis having disorganized the tissue, or depraved its action in an irrepa-

* I was not aware of the extent of their efficacy when I composed this work.

rable manner. But acute still produces chronic pleurisy, even when it has been treated with apparent success: pleurisies are found to degenerate into the chronic state, although the pain had been previously removed by a blister. I have, nevertheless, remarked, that patients in whom this occurred, too much encouraged by the disappearance of the pain in the side, have neglected the other therapeutic means, and were too hasty in resuming their usual diet and occupations. I therefore regard the incomplete treatment of the acute state as a cause very likely to produce the chronic, without however denying that some acute pleurisies are of such a nature as to be protracted in spite of the most rational treatment.

When chronic pleurisy is the result of a contusion of the thorax, it is preceded by a more or less prolonged fixed pain, which at first appears to belong to the muscles, but which may be ascertained as also arising from the lungs, by symptoms presently to be mentioned. Too much reliance is not to be placed on the calm produced by topical applications and leeches, which may here disguise the disease without curing it, as well as in acute and febrile pleurisies. The accidental recurrence of the pain, and the alteration of the respiratory function, are sufficient to make us apprehend that the irritation is still too violent to pass into the chronic state.*

The irregular pains in the side, or those subject to change their seat in the circumference of the chest, when the patients have been exposed to cold, or even have remained in damp places, &c.; and those which appear from time to time only, during the fits of coughing, or in the chill of intermittent fevers—should inspire some distrust, when it is found that they always affect the same seat, and when they can be felt on a deep inspiration. To wait, in order to verify the chronic pleurisy, for a marked alteration in the colour and other signs, which testify the depravation of the assimilating force, is almost to interdict every hope of a cure.

The obstinate and dry coughs which are ultimately accompanied with sensibility of the thorax, manifested solely by the paroxysms, the exertions, and percussion when a trial is made of it, should lead us to think of chronic pleurisy. Although we may be induced to attribute this painful sensibility to fatigue of the intercostal muscles, let us not forget to call to mind, that if the cough

* But there is also time to oppose it, by repeating the leeches and blisters.

can irritate the muscles, it may also injure the susceptibility of the pleura; that there is but a very short passage from this lesion to obscure phlogosis and effusion, and that the pain of these different tissues may readily occur in the same spot.

In whatever manner chronic pleurisy is developed, when it exists, it may be recognised by a particular combination of symptoms, of which we will attempt to present a view.

Progress and Termination.

1. *Of evident chronic pleurisy.*—When an acute pleurisy, which has been well-marked, leaves after it a permanent pain in the previously affected side, or when the acute and circumscribed pain is succeeded by another which is obtuse and extended, chronic pleurisy is probable. If it be afterwards observed that the affected side ceases to be sonorous on percussion; if this latter, as well as the cough, sneezing, and all shocks communicated to the body be painful; if the patient, after having for a long time avoided reposing on the affected side, does not find relief except in resting on it—we may take for granted that the phlogosis of the pleura has occasioned a copious effusion, and that the lobe is for the most part in a state of atrophy, and become unfit for respiration.*

If, whilst these disorders are taking place in the thoracic cavity, the patient complains but of a dry cough, increased by exertions and during the night; if the pulse has been frequent without hardness, the heat seldom febrile, the complexion of a pale yellow without suffusion of the cheeks, and the *embonpoint* little diminished, it is to be inferred that the pleurisy is simple, and the parenchyma little or not at all altered. This species of pleurisy often lasts for more than a year. The patients may perish in a dropsy, or at least in an œdema analogous to that observed at the fatal termination of chronic catarrh. They are also found to die in a state of the most complete marasmus: in these cases death does not take place for two or three years, or perhaps even longer, in consequence of the absence of pain and fever.

If, on the contrary, the patient has experienced frequent re-

* M. Laennec, *(Auscultation Mediate,)* adds to these signs a vibratory voice which is heard through the cylinder applied to the spot where the effusion is, whilst the patient speaks. He calls this *ægophonism.*

turns of dyspnœa, suffocation, and fever, if he has coughed much, if the cough, after having been dry for a long time, becomes attended with a greater or less degree of expectoration; if the hectic is constant, and the cheeks habitually purple; if the body rapidly emaciates, it may be taken for granted that the phlogosis has been propagated to the parenchyma, either from the spontaneous progress of the irritation, or from the effects of the pressure of a too rapidly accumulated fluid; and in this case, induration and tubercles are to be feared. These sort of pleurisies cannot be of a long duration: when the phlogosis is firmly established in the parenchyma, life is wasted in less than two or three months, and the patient perishes with marasmus. But every thing that accelerates or checks the progress of the phlegmasia, hastens or retards the time of the destruction of the organism.

When the hectic fever is of an extraordinary rapidity, the anxiety very great, the features promptly altered, and all the excretions acquire a repulsive fetidness, we may presume that the purulent collections are multiplied and very extensive; we may even in some cases deduce that the parenchyma of the lung is perforated, and that the air is in contact with the liquid accumulated in the pleura; for an abscess there cannot exist of a greater size or more likely to poison the economy, than a cavity of the chest filled with pus, when the introduction of air has transformed this fluid into a putrid sanies.

If the subject who suffers from chronic pleurisy, either simple or complicated with an affection of the pulmonary parenchyma, be predisposed to affections of the heart, the palpitations and other symptoms of aneurism may occur with such a degree of intensity that the practitioner may be liable to mistake the principal disease. These symptoms are the effect of the pressure exercised by the effusion on the central organ of the circulation. We acquire a certainty of this, when, in retracing the history of the disease from the invasion of the first symptoms, we find that the affection of the heart is ulterior to an acute pleurisy, or did not become sensible except during the progress of a chronic pleurisy.

2. *Of equivocal chronic pleurisy.*—If the chronic pleurisy be obscurely developed, from one of the causes that we have enumerated, the commemorative symptoms are not as clear as in that which succeeds to acute pleurisy. Nevertheless, it may still become recognisable in two modes: by the pain and its

effects; by the effusion and its consequences. 1st. *By the pain.* The sensibility of the thoracic parietes, after having slowly increased, may become as great as we have observed it after a protracted acute pleurisy; it may even increase to such a point as to resemble an attack of this latter. It differs, however, in not having a determinate duration, and in often yielding, like all the chronic phlegmasiæ which simulate the acute, to the first antiphlogistic means that are opposed to it. In fact, it does not remain in the acute state except when the parenchyma participates in the irritation.

When the pain does not exceed the limits of an obscure sensibility, which does not become truly painful except on percussion, or at the moment of some shock of the thorax, chronic pleurisy, although it may be dreaded, cannot be verified, except when in a degree in which very probably it is incurable; that is—

2d. *By the effusion.*—We are led to presume the existence of effusion or at least the accumulation of fluid within the thoracic cavity, from this liquid preventing the cavity from returning a clear sound on percussion. The want of sound only proves to us, that something more than a lobe of the lungs filled with air, exists beneath the spot on which the percussion is made. What will then enable us to judge that the body which prevents the sonorousness, is rather a liquid* than the parenchyma become impermeable to air, or any other solid and compact substance? It would be the recollection of what has passed, and the comparison of the present symptoms. Thus, the slow but continual progress of a pain in the thoracic parietes, always affecting the same seat, and more or less analogous to the real pleuritic pain, the absence of symptoms indicating chronic phlogosis and induration of the parenchyma, or at least their coïncidence with those of the pleurisy of which they then seem to be the effect, would lead us to attribute, and with great probability, the obtuse sound of the chest to a collection of fluid in the pleura. I say, moreover, these signs will lead to a presumption that the parenchyma is in a state of great atrophy, because a slight effusion does not prevent the chest from being sonorous, unless the lobe be indurated. When the commemorative symptoms are wanting, the dyspnœa, the suffocation, the

* Here ægophonism is valuable when it can be obtained, and when it can be appreciated.

orthopnœa, and the fever are renewed or take place for the first time; whilst we are in doubt as to the cause of the absence of resonance of the thorax, we may justly attribute these symptoms to the compression of the parenchyma; and the renewal of the pleuritic pain, which usually accompanies them, will often lead us to explain this compression by the accumulation of fluid furnished by the inflamed pleura.

There are cases where percussion will not discover the effusion; this is when the pleuritic collection takes place in the inferior and posterior part of the thoracic cavity, and at the same time the lobe, situate behind the anterior parietes, renders this spot very sonorous on percussion. If it be tried on the posterior part of the trunk, very little additional information will be gained, unless the collection be already very great, which will cause the whole dorsal region to return a dull sound. But if the matter be accumulated in the inferior part by depressing the diaphragm, the sound will still be clear and satisfactory over almost the whole surface of the back, corresponding to the lobes of the lungs. The experimenter will certainly meet with an obtuse sound in approaching the base of the chest, but the thickness of the integuments, often augmented by œdema, and the vicinity of the abdominal viscera should make him hesitate in attributing the want of resonance to a collection of fluid. I have cited a case of this kind, (Case 23,) where, nevertheless, the quantity of fluid was very great. Chronic pleurisies of this nature ought to be classed with those of the most difficult diagnosis, when they have not commenced in the acute form and with a stitch in the dorsal region, as the pain may be taken for a chronic lumbago, or be attributed to some suffering of the abdominal viscera, of which we have an example in the above mentioned case.

There are chronic pleurisies, then, in which the pain and effusion do not furnish sufficient data to enable the observer to draw a certain diagnosis. But those of the posterior and inferior part of the cavity are not the only cases that may give rise to this unpleasant hesitation. Certain double pleurisies, or of the two cavities, also become embarrassing, 1st, on account of the extent of the pain, which occupies the whole circumference of the thorax, and may be mistaken for rheumatism or catarrh; 2d, because the compression taking place slowly, percussion most generally is equivocal to the last stage of the disease. In fact, as

long as the parenchymata still occupy the greater part of the intra-thoracic space, the sound always has a certain resonance. It may be supposed that if the two pulmonary lobes be simultaneously and rapidly depressed, or that if the atrophy of one be more rapid in its progress than that of the other, the symptoms of compression which we have already detailed will not fail to occur in a marked manner. Double pleurisies will therefore not be obscure, except when the pain is slight, and when the collection takes place very slowly, that is, during the first stages of the disease, which are often very protracted; but it is precisely during this interval that it is important to draw the diagnosis. This motive has determined me to collect in a final analysis, those data that appear to me as best fitted to point out the existence of a pleurisy as speedily as possible, in cases where the pain and percussion do not furnish sufficient indications.

3d. *Of the most latent chronic pleurisy.*—When a patient is harassed by a severe and harsh chronic cough, and makes vain attempts to expectorate; when this cough is prolonged beyond three or four months without our finding that a continued febrile action is developed, or any symptoms of sanguine phlogosis and chronic induration;* when at the same time the complexion is slightly changed, and the *embonpoint* well preserved, we are entitled to think that the point of irritation is not seated in the mucous membrane of the bronchial vesicles. It remains to determine what may be the seat of it.

If it be in the stomach, some gastric symptoms may indicate it to us. If in the larynx or trachea, the local lesions will soon demonstrate it. If in the pectoral cavity itself, it may be foreign to the lungs, or in these organs and their appendages.

Foreign to the lungs: it may occupy the mediastinum, the parietes, the heart and the large vessels. If in the mediastinum, and it be inflammatory, the apyretic calm we have spoken of is interrupted by the symptoms of phlegmon. If it consist of a tumour developed in the tissue of the spot, the diagnosis becomes almost impossible; but it should be stated that these cases are very rare. The same takes place with regard to all extraordinary tumours which may be developed in the parts surrounding the respiratory organ. If the heart or large vessels be

* See the preceding chapter, and afterwards the *History of Phthisis.*

affected, the disease manifests itself by disorders of the circulation. (*See symptoms of the aneurismatic or varicose diathesis, page* 110, *et seq.*) In these cases the cough instead of being loud, dry, and harsh, is hollow, bubbling, and with mucous expectoration.

In the lungs and their appendages: the point of irritation may also occupy different seats. It may consist in an extraordinary tumefaction of the lymphatic glands situate between the bronchial divisions. The diagnosis of this lesion is difficult unless the tumour compress the air passages so much as to render the respiration sibilant; but if it pass into the inflammatory state, all ambiguity disappears, and the symptoms of phthisis pulmonalis manifest themselves. The point of irritation may also be a single tubercle developed in the middle of the parenchyma, which it compresses in proportion to the accumulation of blood there, as during exertions, &c. Such a circumstance furnishes a trait of resemblance between this case and chronic pleurisy, which may lead to error; but I repeat, it will only be where no light is furnished by the pain and percussion. Moreover, a single tubercle usually produces others, and inflames the lung, which finally gives a character to the disease. But isolated tubercles, as well as tumefactions of the bronchial glands, with simultaneous affection of the lymphatic vessels of the lung are very rare; whilst latent phlogoses of the pleura are common.

It results from these different comparisons, that old, dry, harsh coughs, with progressive emaciation, without fever, or with frequency only of the pulse which does not appear febrile except in consequence of excesses, already furnish us with an indication of a permanent irritation of the pleura. All that is wanting to obtain a complete diagnosis, are the signs afforded by the pain and percussion; but, in these delicate conjunctures, we take advantage of the slightest indications: hence, such pain which, unaccompanied with the symptoms just enumerated, would never be referred to pleurisy, becomes an almost certain proof of the existence of this disease, when the pain is alone wanting to exclude all the other causes of irritation that we have reviewed.

Irregularities and Complications.

In following the march of pleurisy in the chronic and latent state, we have spoken of its irregularities. Its most common complications, as we have already noticed, are sanguine and

lymphatic phlogosis of the parenchyma, aneurism of the heart, and disorders of the circulation corresponding to different alterations of the large vessels.

It can readily be conceived that the brain may be particularly irritated during the course of a protracted pleurisy, and whatever we might say on this subject would be necessarily superfluous. We have not perceived a direct connexion between the phlogoses of the pleura and those of the arachnoid.

The abdomen is disposed to phlogosis by all prolonged sufferings of the respiratory organs; it sometimes receives in its serous membrane the phlogistic influence of inflammations of the pleura; and the latter, in its turn, may become diseased without any other cause being found than an affection of the peritoneum: I have collected many examples of this. Chronic pleurisy may then be considered as causing a predisposition to peritonitis, and *vice versa*. We defer what we have to say respecting this complication till we come to treat of peritonitis. The mucous membrane of the digestive organs appears to inflame still more frequently than the serous, towards the close of a pleurisy of long standing. But this may arise from particular circumstances, the examination of which we will defer to the chapter on lymphatic inflammations of the lungs with ulceration—diseases which rarely reach the last degree of chronicity without being complicated with a *colliquative* diarrhœa.

Of all essential fevers,* it has appeared to me that intermittents have the closest relation with pleurisy. But what can I add here, that will not be a repetition of what I have said when speaking of the development of this phlegmasiæ?

Organic Alterations.

We have already said that it was presumable that the cure of pleurisies could not take place without adhesion. Those frequently discovered in the bodies of persons who have succumbed without any symptom of a pectoral affection, have warranted this opinion, and several anatomists, among whom I will cite Baillie, who some years since published a treatise on pathological anatomy, have admitted that all these adhesions are products of inflammation. Nevertheless, if it be considered that we never fail

* For essential fevers, read acute, continued, or intermittent gastro-enterites. (*See Examination of Medical Doctrines*, &c.)

to meet with them in every individual who has suffered for a long time from laborious respiration, and that all parts of our body which are merely contiguous in a physiological order, become continuous if they remain for a long period in a state of immobility—it must be admitted that all these adhesions of the pleura are not certain signs of previous pleurisies, and that it suffices for their formation, that the gliding between the two exhaling surfaces should be rendered impossible. Moreover, as inflammation is at the head of the causes that are the most efficacious in producing the want of gliding, it is difficult to conceive that it can terminate without leaving adhesions.

It would then appear to be sufficiently demonstrated that the fluids exhaled on the gliding surfaces, are the medium of the adhesion which eventually takes place, and in proportion to the thickness of these fluids is the facility with which the adhesion occurs. This has led us to think that a moderate and not very protracted phlegmasia was favourable to the organization of the albuminous fluid of the serous membranes, whilst the excess of the irritation, or its continuance even where it was slight, always militated against this operation of nature. In fact, it is the essential character of inflammation to suspend the excretions; as soon as it subsides they become re-established, but the humour is denser than usual: this is the actual moment of organization. Finally, the phlogosis, in dissipating, permits the fluid to resume its physiological conditions, that is, to be soon reduced to a thin halitus, incapable of injuring the newly-formed tissue. But if from its outset the phlogosis attain a degree of violence which suddenly extinguishes the vitality of the capillaries of the membrane, suspends their sensibility, or forces them to exhale too great a quantity of lymph, or pure blood, as but too often happens; if, although moderate or feeble, the phlogosis be steadily kept up, and the serous exhalents become the habitual centre of fluxion—it is evident that it is wholly impossible for a salutary adhesion ever to take place. In these unfortunate cases, death is the only possible termination of the phlegmasia, and alterations are observable which correspond to the period when the disease became fatal. Thus, if the subject has succumbed in the highest degree of a violent phlegmasia, the serous membrane is found much injected, black, or sphacelated, and the exudation very thick; the fluid is in less quantity than in acute pleurisies; but

it is still abundant in proportion to the shortness of time it has had to compress the parenchyma. Fluid blood is also observed, or a fibrinous membrane which resembles the coagulum of this fluid.

If the pleurisy has been chronic, we may often remark that the serous membrane has been considerably thickened; tubercles or small depots of tuberculous matter are found between its laminæ; sometimes its tissue appears disorganized and converted into a lardaceous substance, into cartilage, bone, &c. This fluid is generally met with in great abundance, and the lung is sometimes so wasted, that at first sight it might be imagined that it had disappeared.

When the pleurisy maintains about a medium between the acute and the chronic state, it is not rare to meet with cellular productions of several inches in length, some of which have already a fibrous and organic appearance, and others partly broken up and in a state of *deliquium*, as if they had been dissolved by the serosity or liquid exudation.

Sanguine effusion and gangrene of the serous membrane also present themselves, though rarely, in the bodies of those who have perished from chronic pleurisies. But in the cases in which I have observed this species of combination, the chronic phlogosis had resumed the characters of the acute state, some time before the fatal epoch.*

The compression of the pulmonary parenchyma, an inevitable effect of the accumulation of the material product of the phlegmasia, almost always disorganizes this viscus, unless it take place slowly, and in neither very irritable nor very sanguine subjects. In this case, the pleurisy is simple, but more generally the compressed lobe becomes tubercular and subsequently inflames. Sometimes we find only soft tubercles on the circumference, as if they were simply the effect of the obstacle presented to the course of the white fluids, whilst sanguine phlo-

* I have never found gangrene of the pleura, without there being at the same time foci of inflammation in the parenchyma. It is opposite to these foci that gangrene takes place in the pleura, and that it often becomes perforated. These foci may be large or small; I have found some which could have contained a small hazelnut or pea; they were excavated beneath the serous membrane on the superficies of the lobes. The serous membrane appeared there depressed and had the aspect of a blackish pustule. These foci were absolutely without tubercles and constituted so many small phlegmonous depots.

gosis reigns exclusively in the lobe of the opposite side, which is injected, indurated, and so much developed, that it completely fills its cavity, and the exhalent surfaces of its serous membrane are every where united together by adhesions from pressure.

Although the organic alterations which the lung undergoes in consequence of its depression, appertain to the lymphatic irritations of which we shall presently speak, I cannot dispense with here noticing the perforations of the pulmonary pleura, because this perforation, by permitting the air to reach the fluid accumulated in the cavity of the chest, influences in an extraordinary manner the march of chronic pleurisies.

When I have met with a solution of continuity in one of the lobes of the lungs, with an ulcerated abscess communicating with the pus with which the serous membrane was filled, I did not believe that the disease had commenced by an abscess developed in the parenchyma and opening into the cavity of the chest. My reasons are, that a phlegmon of the parenchyma produces the tumefaction of the lobe, presses it forcibly against the parietes, and maintains it there firmly, by adhesions from pressure. Consequently, if this phlegmon should produce an abscess whose pus was directed towards the circumference of the lobe, it would infallibly take place towards the exterior of the chest, and discharge through an opening in the integuments. Such is also the opinion of Professor Boyer, who has several times spoken of it in his private lectures and in public discussions; but I am not aware that he has given an explanation of cases analogous to those I have observed. It may, however, be readily conceived, that an inflamed lung, become tubercular and ulcerated, from having been too long compressed by the pleuritic effusion, is finally perforated, and that the pus of the parenchyma and that of the pleura are mixed together. It may likewise be admitted that the serous membrane—dragged on one side by the fluid which fills it, irritated on the other by the acrimonious pus of an ulcer which has already eroded the parenchyma and has reached its external surface—is exposed to gangrene and may occasion the communication under consideration.

I will now add, in order to condense all I have said on this subject, that whenever I have met with an abscess of the parenchyma opening into the cavity of the chest, I have remark-

ed traces of chronic pleurisy, and that the history of the disease left me no doubt as to the priority of the symptoms of this latter affection. In all these cases, also, the pleura was gangrenous; but I presume that the perforation may very well take place without this.

Such are the organic alterations that I have observed in the tissue of the pleura and of the lungs, resulting from either acute or chronic pleurisies. It remains for me to speak of the matter of the effusions. The fluid accumulated in the cavity of the chest in consequence of pleurisies, is subject to many variations. When the phlegmasia has been acute, a white or yellowish membranous layer is found immediately on the pleura. This matter has a fibrous appearance; if it be pressed between the fingers, serosity will be expressed from it, and its cells will be effaced. The space that is found between the parenchyma and the ribs is filled with a whitish serosity, without odour, or at least not fetid, nearly resembling whey, and in which shreds of the membranous exudation are seen floating.

The more protracted the pleurisy is, the less of a fibrous appearance has this exudation. In the most chronic cases, it resembles merely a layer of pultaceous or caseous matter, very analogous to the white substance resulting from the degeneration of tubercles. In these cases the effused fluid is sometimes thick, resembling a whitish and clotted pap; or else a layer of caseous matter of several inches in thickness, having the smell of acid mucus or of fermented paste, is remarked in the most depending part on which the body lies, or even over a great part of the membrane. Sometimes these inorganic aggregates present in their centre a nucleus of such hardness, as to resemble at first sight a piece of plaster, earth, or even stone. I can advance nothing on the chemical nature of these singular productions, never having been enabled to analyze them. When subjects who have died from chronic pleurisy were of a dry constitution, and endowed with a vigorous lymphatic apparatus, much less of this pultaceous matter is found than in slender, light-complexioned bodies having a soft and transparent tissue. Sometimes even the membranous exudation is entirely dissolved in the serosity, and the phlogosed pleura appears denuded on the parietes of the abscess.

In some pleurisies, even the most chronic, the material product of the inflammation unites all the qualities of the best conditioned phlegmonous pus.

Often, although the membranous exudation may be very thick, the effused and moveable liquid in the cavity is as limpid as the serosity of the most simple dropsies. More frequently it is red, as if it were impregnated with the colouring portion of the blood,* without at the same time ceasing to be thin and transparent.† Very frequently it has so little relation with the exudation, that we might be tempted to believe that its accumulation took place long after the formation of the new tissue, at a time when the cure was almost effected, and that it alone had produced the separation of the surfaces, the compression of the lobe, and the death of the patient.

I have sometimes met with effusions of pure blood in the cavity of the pleura, which appeared to have occurred some time before death, and at a period when the false membrane and the other derangements common to chronic pleurisies had doubtless existed for several months. (See Case 22.)

These effusions may also exist without the serous membrane presenting any trace of disorganization: its redness without development, and the injection of the tissue by which it adheres to the parts, are the sole traces of the increase of organic action which caused the afflux of blood into its cavity. I have seen some instances of this kind, and have always remarked that the pain had been excessive. Perhaps it will be wished to refer these cases to the class of hæmorrhages. As for myself, considering that in these kind of affections that nothing was perceptible externally, except a more or less extended pain in the thoracic parietes, with dyspnœa, anxiety, and febrile action, I do not feel authorized in excluding them from the pleurisies. When I consider, moreover, that hæmorrhages are produced by the same causes, are treated in the same manner as the phlegmasiæ, may complicate them, and often be transformed into inflammations—I am persuaded that it is impossible to advantageously study the first, without at the same time paying attention to the others.

* Or blackish, as well as the pleura itself, and it is always the blood which gives it this colour.

† It is also found as if muddy, of a whitish or reddish black colour.

Whatever may be the nature of the effused fluid, whether it be aqueous, lymphatic, or purulent; whether it have the appearance of whey; whether it be more or less loaded with the detritus of the membranous exudation, or of the pultaceous matter of a caseous appearance, &c.—it is often seen mixed with liquid blood, unaltered or decomposed and reduced to clots; thus affording another proof of the facility with which the organic action producing the hæmorrhages combines with that which keeps up the inflammation.

Whenever the pleura is neither sphacelated nor perforated, the humour it contains is not fetid: we are only struck by an acid vapour, analogous to that of mucus in fermentation, and by an animal odour common to all the tissues of a dead body. But if the air has penetrated to the effused fluid, which often coïncides with gangrene of the membrane, the cavity appears to be inundated with a horribly fetid sanies, whose external characters it is impossible to describe with any precision, as they are subordinate to the nature of the immediate materials which predominate in the matter of the effusion. It has been seen what symptoms correspond to the resorption of this tainted fluid.

Treatment.

All the indications which we have established for the treatment of peripneumony and catarrh naturally recur to mind, when we are to develope the principles that ought to guide the practitioner in the cure of pleurisy. This similitude exempts us from repeating what we have said in the preceding chapter. We shall here confine ourselves to pointing out, among the means appropriate to the treatment of sanguine phlogoses of the pectoral organs, those which are the most particularly applicable to phlogosis of the pleura, first in the acute stage and afterwards in the chronic.

Treatment of Acute Pleurisy.

General blood-letting is much less necessary in pleurisy than in peripneumony. This is not the case with local bleedings: leeches and cups are always very useful in pleuritic pains.* Opening of large veins ought to be reserved for cases where the

* This is not saying enough; we will always remove them when we attack them at their commencement, if we employ a sufficient number of leeches and cups.

subject is in an evident state of plethora, and for those where the parenchyma participates, or appears to participate in the irritation of the serous membrane. When it is wished that the leeches should be very efficacious, the blood ought to be permitted to flow from their bites for several hours, and the discharge aided even by the application of emollient fomentations of the temperature of the body. A cataplasm composed of linseed meal, crumb of bread, or any other analogous substance is also an excellent method of promptly inducing resolution of the membranous phlogosis, and may immediately succeed to the employment of local bleedings. Finally, I consider tepid bathing of the whole body as also tending to this end with peculiar efficacy. Demulcent potions rendered a little anodyne, and slightly diaphoretic drinks, indicated in the treatment of catarrh, should afterwards be given with the intention of continuing the determination towards the capillaries of the circumference, established during the use of the bath.* It is useless to add, that the patient should be sufficiently covered, to prevent the external cold from contravening the effect of these medicaments.

Blisters are generally considered as the most appropriate remedy for phlogoses of the pleura. We usually observe, in fact, that the pain disappears in consequence of their action, but I have several times observed that this disappearance did not offer the physician a guarantee sufficient to remove all his fears as to the sequelæ of the phlegmasia. I have seen several pleuritic patients die, previously to the term assigned to acute diseases,† in whom the blister had removed the pain from the first day; and dissection proved that the inflammation of the pleura had not been dissipated. In these cases, the persistence of dyspnœa, uneasiness, fever, and other symptoms, is sufficient to demonstrate that the disease has been disguised only. When the blister, in dissipating the pleuritic pain, procures a considerable diminution of these same symptoms, we are the more easily led into error; we consider the phlogosis as displaced by a sudden revulsion; and if the patient subsequently become consumptive, we do not attribute

* I must at present avow, that diaphoretics have not rendered me the services I expected from them. As to the bath, I dread it, because it augments the oppression, and because I am afraid of the chill which succeeds to it. Large emollient cataplasms may be advantageously substituted for these two means.

† That is, before the fortieth day.

his disease to the sequelæ of the serous inflammation properly speaking; we are more inclined to believe that he owes his decay to a disorder of the parenchyma itself. I lay great stress on this point, being intimately persuaded that a host of practitioners have habitually under their care consumptions arising from pleurisies, the formation of which they have seen and misunderstood.

Since the disappearance of the pain in the side, from the rubefacient effect of cantharides, is not a certain proof of the cessation of the phlogistic action, even when a majority of the symptoms are dissipated, the physician should be on his guard, and not believe that he may dispense with the employment of other means which are proper for the disease, until the usual term of the duration of phlegmasiæ has passed.* It will then be necessary that the regimen be aqueous and vegetable; that the demulcent and slightly sudorific drinks should be continued, that repose, calm of the passions, and general topical applications which favour the action of the external capillaries, should aid the other means, till the twentieth or thirtieth day. It is even prudent to push precaution still further, and not to restore the patient to his usual diet and former habits, except by degrees. In short, nothing but the most complete re-establishment of the functions can attest that the phlegmasia of the serous membrane has entirely disappeared.

As all violent actions, and all shocks of the body are obstacles to the formation of the adhesion by which pleurisies are to be cured, it is very important to recommend silence and perfect quiet, and to render the fits of coughing as rare as possible. The antiphlogistics are the first and most powerful remedies for the cough, when it arises from a well-marked inflammation; the impression of the air and of cold bodies on the breast and arms is one of the common causes of the renewal of the fits of coughing. Emollient cataplasms and flannel jackets will then always be very efficacious, when the activity of the circulation shall have been sufficiently reduced. If, in spite of these precautions, the cough still persist, if it be kept up by an uncomfortable tickling of the larynx and mucous membrane of the bronchiæ, and cannot be quieted by mucilages, we still have opium, which is always the best

* Until all the signs of the disease are dissipated.

resource against irritations of the chest, that refuse to yield to antiphlogistics and are exasperated by irritating revulsives. It may be taken in substance in the evening; and a combination of laudanum or syrup of diacodium, in small doses, with demulcent cough mixtures, is to be prescribed at intervals, during the day.

Treatment of Chronic Pleurisy.

When chronic pleurisy is evident, it may sometimes be attacked sufficiently early to prevent the fatal consequences which it is wont to induce. It is clear, that the shorter period it has lasted, the greater is the hope of a cure, and the more closely should the treatment be conducted in accordance with the principles we have laid down for the acute state.

When the agitation of the sanguine apparatus, with heat and lesion of the secretories, announces that the phlogistic action is perpetuated in the capillaries of the parenchyma, there is no other resource than to persevere in the use of aqueous and antiphlogistic drinks.* It is above all important never to allow solid food from the animal kingdom, to make use of rich soups with extreme caution, and not to satisfy the appetite of the patient, even with such aliments as are most appropriate to his condition. The physician ought to be well persuaded, that as long as the pulmonary parenchyma is in a state of suffering, either from the effect of the compression caused by the fluid accumulated in the pleura, or from the latent phlogosis that this compression keeps up, it cannot concur in an efficacious manner to the assimilation of the chyle, or to the oxygenation of the blood. If he pay strict attention, he will soon be convinced that the more the patients eat, the shorter time they live; that by reducing them to a severe regimen, he will sooner cure the hectic fever than by repeating the bleedings and infinitely multiplying the exutories. This point is so important, that I regard it as the basis of the treatment of phlegmasiæ† of the chest, which are of sufficient intensity to occasion fever. It is always by diet that I have calmed the febrile actions which supervened during the progress of chronic pleurisies: the more rigid it was, the less the patient lost his strength, because he was sooner restored to a state

* We have also the resource of local bleedings.

† Chronic, it must be understood.

of calm and apyrexia. It will never be imagined, without having personally observed it by a comparison of a great number of patients, in how great an extent a fever of twenty-four hours duration will destroy the strength of a patient already in a languid state, and how difficult it is to repair the evil it has occasioned.

It is not, then, whilst fever and dyspnœa indicate the very deranged state of the lungs,* that the losses of the patient are to be attempted to be repaired by food. The storm must first be permitted to subside. If the parenchyma do not suffer, except by sympathy, or from the effect of a compression which has not lasted long enough to implicate its organization, apyrexia will soon take place. Then it will be permissible to attempt the restoration of the patient, but still it should be conducted with the precautions that we have so strongly recommended, in tracing those rules of regimen which are proper in chronic catarrh and peripneumony. We refer our readers to them, as well as to the article on the treatment of consumptions.

If an obstinate pain in any part of the chest lead us to apprehend a latent development of pleurisy, local bleedings are to be employed at once. Cups are here of recognised utility: their frequent repetition should not to be feared, and they ought always to be applied as near to the suffering spot as possible. Flying blisters are advantageous. Cauteries to the chest are a means of revulsion that should never be neglected, especially when the patient is of a soft tissue and disposed to lymphatic engorgements. Afterwards come baths, frictions, moderate heat of the skin, the careful use of mild sudorifics and light diuretics, and care to keep the evacuations in a free state, but not to force them. All these means should be aided by repose, avoidance of all exertion, care to calm the cough, and above all by regimen, which should be of easy digestion and nourishing, without being too stimulating, as we have several times recommended.

By persevering in this plan of treatment, why shall we not

* We are obliged to allow patients food when the fever occasioned by the inflammation of the lungs persists, and when, in spite of its intensity, the appetite is very great—because, in these cases, the phlegmasia of the lungs is such that abstinence will sooner cause the death of the patient, than it would extinguish the fever. We here, then, allude to the febrile actions only, suddenly occurring during the calm of a chronic pleurisy: diet will generally accomplish the desired end, but if they persist, and the appetite returns, we cannot dispense with allowing food to the patient.

succeed in calming the irritation and in preventing the exhalation from so far exceeding the absorption as to separate the surfaces by breaking the tissue which formed the adhesions? There is no doubt of our success, if the phlogosis has not already irreparably injured the tissue of the membrane in destroying its vitality, by depositing tuberculous masses between its fibres, by transforming it into lardaceous tissue, &c. These reflections demonstrate to us how important it is to attack the disease very early, and never to vacillate in the treatment from the time we are satisfied with the diagnosis that has been drawn.

Can chronic pleurisy be still treated with hopes of success at a more advanced stage, and when it is already rendered sensible by the alteration of the complexion, and by the dull sound of the diseased cavity? We can only oppose it by a continuation of the means already advised; but can they ever repair the vices of organization produced in the pleura and parenchyma by the prolonged duration of the phlogistic action? In even supposing that the disorders were limited to the false membrane and the effusion, would it be possible to induce a reabsorption of these foreign bodies, the development of the wasted lung,* and the readhesion of the phlogosed surfaces? We daily observe that the most liquid part of the effusion is reabsorbed; but can we suppose that this caseous matter, a result of the detritus and decomposition of the albuminous exudation, may become susceptible of being again taken up by the inhaling orifices? And if it be not, will it not always form an obstacle to the adhesion which must be established for the cure to take place? Without doubt. Fallen from its first condition, it no longer participates in the qualities of living fluids, nor serves the purpose for which nature had primarily destined it.†

It would in most cases be chimerical to pretend to obtain a cure by evacuating the chest by the operation of empyema. In fact, for the effusion to be evacuated the air must replace the fluid

* When the lobe cannot develope itself, the cavity contracts, and the two pleuræ, although degenerated, cartilaginous, &c. adhere together. Life is a long time compatible with such a state, if it be not disordered by the explosion of an acute phlegmasia.

† The most liquid part of this matter is resorbed, and with the remainder are formed cartilaginous, fibro-cartilaginous, osseous, &c. concretions. (See the preceding note.)

which flows out, or the lung become dilated and expanded in proportion to the degree of the evacuation. If the air take the place of the pus, it will not fail to induce a new degree of irritation in the pleura; it decomposes the humour which exudes from the inflamed surface, as the fetid odour which exhales soon testifies. (See Case 33.) As soon as the wound had been *dilated* to facilitate the exit of the sanguinolent fluid, this liquid was found to assume the characters of fetid and sanious pus, and to create hectic fever, which it kept up* till the forces were entirely exhausted. The history of this patient is that of all individuals on whom the operation of empyema is practised: if any have been saved by it, it could be those only who had but an isolated and circumscribed abscess around the opening, or situate out of the cavity of the pleura. As for myself, I will never believe that a pleura phlogosed throughout almost the whole of the circumference of the lobe and of the cavity which contains it—that a pleura altered by the air and loaded with the remains of the solid exudation, with compression and atrophy of the lobe—could be susceptible of regaining the physiological state.†

If air does not replace the matter of the effusion, this latter cannot flow out, we have said, except the development of the compressed lobe should tend to fill the space that it occupied. This dilatation is possible in recent and sudden effusions, for example, after accidental hæmorrhages. But is it ever to be expected that lungs which are degenerated, indurated, for several months impermeable to the air, phlogosed, and perhaps filled with tubercles, can expand to such a degree as to fill the thorax and resume their former functions? Besides, in supposing that this prodigious change were possible, and that the pleural surfaces separated for a long time could again come in contact with each other, would not the false membrane, degenerated into a foreign body, present an invincible obstacle to reunion, or to every other imaginable method of cure.‡

Although the treatment of advanced pleurisies be fundamentally reduced to the means that we have indicated for those which were but in their commencing stage, there are, nevertheless, cir-

* Conjointly with the inflammation of the parenchyma.

† Truly, these cures are rare, but they should not be regarded as impossible.

‡ See the preceding notes, p. 229.

cumstances more common at this period that at any other, which require particular remedies, for example, the serous predominance which takes place in pleurisies which are wholly indolent and unattended with fever. An increase of oppression and dyspnœa results from it, which is to be treated by decoctions, diuretic potions, oxymel, wine of squills,* and frictions and inunctions with the same substances.

Palpitations and other symptoms of an affection of the heart, require the antiphlogistic regimen as long as the patient is vigorous, and while the freshness of his complexion, and the volume and firmness of his flesh testify that sanguification and oxigenation have not suffered much. But as soon as these functions deteriorate, and the serous diathesis takes place, we are to act as if it were our business to combat an asthenic dropsy. (See Case 32.)†

Opium may be always advantageously combined with squills, either in the juleps, or in the frictions. In all cases where anxiety and sleeplessness are added to the dyspnœa, compression will do much good, provided the dropsy be not too inveterate. I have cured several obstinate œdemas of the lower extremities, which appeared to depend on an obscure but still recent affection of the pectoral organs, by a roller bandage from the feet to the groins. One of these patients, in whom I suspected aneurism, and a commencement of pleurisy, was menaced with an universal dropsy: I cured him by regimen, alcoholic frictions, diuretics, and by compression exercised on the two legs and thighs. He still enjoyed tolerable health, a year after his dismission, when I quitted the hospital of Udine; but he was incapable of continuing the military life, and expected to be immediately discharged. Other patients have experienced relapses as has been seen in Laporte, (Case 32,) but all, at least, were indebted to this method for some additional weeks or months of existence, and always for a considerable relief.

After having explained the principles of the treatment which appears to us best adapted to different chronic pleurisies, it remains for us to demonstrate the utility of the means that we have advised, by reporting some cases, which will at the same time

* Paying attention to the susceptibility of the stomach.

† If the co-existence of a gastritis should be unfortunately overlooked here, the sufferings of the patient will be much increased.

contain certain therapeutic details, that could not be presented in the exposition of general principles.

The succeeding disease has the strongest relation with several of the pleurisies terminated by death, whose history we have given in this chapter. Its happy termination appears to me to militate in favour of the mode of treatment that was followed. We cite it to fix the attention of physicians on the influences which external agents exercise on the point of irritation fixed in the thoracic cavity.

CASE XXXIV.—*Chronic pleurisy with gangrenous eschar and ulcer on the thoracic parietes.*—Gayon, aged thirty-six, dark complexion, dry, corpulent, and robust, was attacked on the 25th of January, 1807, with a severe pleurisy, whose pain was fixed in the right side of the chest. The next day he entered one of my wards. He had violent fever, with a contracted pulse, anxiety, painful cough, and mucoso-sanguinolent expectoration. This man had had nine years before, a very violent pleurisy of the same side, which was removed by a copious bleeding from the nose, although he had been bled several times. Since that time, the side had remained tender, especially when the patient carried his knapsack. Ten leeches were applied over the painful spot, and when the bites had bled sufficiently, I put a blister over them.

The pain in the side disappeared; but, on removing the dressing, we perceived a gangrenous eschar, and the inflammation which supervened some days afterwards to detach it, renewed all the pleuritic symptoms. Nevertheless, emollient cataplasms, antiphlogistic regimen, and demulcents soon dissipated all this irritation; and the twenty-ninth day, Gayon presented a well-conditioned ulcer, which promised soon to cicatrize, and the lung no longer appeared diseased.

The thirtieth day, return of a general pain of the right side of the chest, febrile action, loss of appetite; the surface of the ulcer blackened, and its pus became serous. I judged that solid food still fatigued the organs too much.—More rigid diet, soup, rice jelly, simple broth in the evening; demulcents, opium. These precautions soon restored calm and appetite, and the ulcer regained its freshness.

Such was his situation on the 2d of March, the thirty-fifth day

of his disease. The food was then augmented by degrees; but on arriving at a half allowance, Gayon experienced a slight febrile action, which obliged me to place him on a quarter, with light and scanty vegetable food.

Some days afterwards, the granulations of the ulcer appeared relaxed and fungous. They were fomented with a spirituous decoction of bark, and we immediately observed them to begin to cicatrize. I continued to nourish him as well as possible, and to aid digestion by a little bitter wine, and some glasses of infusion of chamomile. He regained strength and colour.

The 20th of March, very marked symptoms of gastric embarrassment, pains in the breast. I judged that he had been allowed too much nourishment; diet would have sufficed to remedy the present attack; but its effect would have been less prompt than that of evacuants,* and the wound grew worse; I therefore prescribed emetized tamarind water. The gastric embarrassment promptly yielded; but it required much attention and diet to preserve the patient from a relapse of it, and to prevent the chest from becoming painful. Finally, calm was perfectly re-established about the 8th of May, the ninety-fifth day of the disease, which was the epoch of the cure of the ulcer. Hitherto, I had always observed a slight, but tolerably marked agitation of the pulse in the evening; and each time I wished to increase the food above the quarter allowance, I found the pain in the chest to be renewed with cough, the complexion to alter, and the ulcer to blacken and menace a retrograde march.

During the eight or ten days succeeding to the cicatrization, Gayon appeared to become rapidly convalescent; but, about the end of May, the frequency of the pulse, a strongly-marked nocturnal heat, the renewal of the cough, and of a general pain in the right thoracic parietes; some cephalalgia, a disposition to diarrhœa, with colic and tenesmus, warned me that it was time to diminish his food. Until the 10th of June, he was unable to eat more than a half allowance in the morning, and a quarter in the evening, of very light food.

* Experience has since convinced me that diet is the promptest and surest in such cases; in this the emetic did not prevent the subject from being exposed to a return of the irritation, we go further, it facilitated it. Leeches added to regimen would have prevented all these symptoms.

Nevertheless, his face resumed the blackish tint, mingled with a shade of flesh colour, which was natural to him; the muscles again became prominent, and with the exception of a few pains which were felt in the chest, when he gave way too much to his appetite, or attempted some fatiguing exertion, Gayon appeared to be completely re-established. The 21st of June, he left the hospital in very good health.

This soldier presented himself to me, two months afterwards to obtain his discharge, assigning as a reason, that he was unable to march, or carry his knapsack without experiencing pains in the breast. My colleagues and myself were of opinion that he was incapable of continuing in military life. But the perfect return of his *embonpoint* and colour, the calm of the circulation, the absence of all pain when he could live tranquil, the confession he made to me, that he found himself as well as before his disease, all persuaded me that Gayon was completely cured.

Observations.—With regard to this pleurisy, we will first remark, that it may sometimes be very dangerous to add irritation to irritation. I had often seen, in the hospitals of Paris, blisters applied over leech bites for the cure of acute pleurisies. I had myself followed this practice in that city, in Belgium, in Holland, and always without danger, but the first time that I made a trial of it in the climate of Italy, I found such fatal consequences to result from it, that I henceforth renounced it for ever. But to what can this eschar be attributed, which was observed on the removal of the blister? it did not depend on a deleterious principle; for no phlegmasia was ever more simple than that with which Gayon was affected. It did not proceed from the feebleness of his temperament, since the chronic disease with which he was attacked, never got better, except from the use of demulcents, and a light nourishment; what cause then could induce it, if it were not the excess of the irritation?

I had already remarked, whilst attending the surgical practice in the marine hospitals, during An I, II, III, IV, and V, that a cantharides plaster, applied to blistered surfaces on the legs, in putrid fevers, for the purpose of prolonging the suppuration, often occasioned gangrenous eschars of the superficies of the derma, and an exfoliation which rendered the cure very tedious. I had attributed this effect to the deleterious principle of the fever, or to the influence of hospital miasmata; but more recent facts have forced

me to believe that other causes may contribute to it. Having wished to excite blistered surfaces by a mustard plaster, in cases where it was not possible to suspect contagion, or the influence of a deleterious miasm, I have also induced a superficial gangrenous eschar. I have observed that we are liable to produce this effect if we repeat the application of a rubefacient on the same spot, even when the first had not raised vesicles. I have several times seen plasters of styrax hasten gangrene, when they were applied, under the name of antiputrescents, to excoriations of the sacrum and hips, for the purpose of preserving the part from sphacelus. I am aware that Goulard's extract, and all the alcoholic preparations so useful in slight burns, do not fail to destroy the vitality of the skin, if they be employed as a fomentation to a considerable burn. The comparison of these different facts had finally proved to me that in irritating an inflamed part, we may destroy its life, and produce gangrene from excess of inflammation, without the phenomena, which are given to us as characters of the inflammatory state being increased in an eminent degree. But I was far from thinking that simple pain, without redness, or with but a slight injection, would expose the part to lose its vital properties, if it were again irritated. The occurrence in Gayon's case convinced me of it; I tacitly concluded from it, that it was very easy to add to the danger of an internal phlegmasia, when the means we wish to oppose to it are of a nature to augment the sufferings of the affected part,* and that it is very difficult to determine the just medium in the employment of stimulants in protracted and asthenic diseases.

This truth, which I have endeavoured to render clear in developing the theory of chronic pleurisies, will become far more evident from the history of the mucous phlogoses of the abdomen.

Gayon's case offers such frequent returns of the general pain of the thoracic cavity, where the pleuritic stitch was felt, that it is impossible to attribute these pains to the ulcer. Moreover, they appeared whilst this was cicatrizing; they were found to return after its perfect consolidation, and the cough, hardness of pulse, and elevation of temperature of the skin were always

* Let this be applied to acute gastro-enterites, which are stimulated under the name of *putrid and adynamic fevers.*

observable at the same time. These pains were then the effect of the irritation of the serous membrane, and sometimes of the parenchyma itself.

These pains, and their influence on the functions, show that the phlogistic action established in the serous tissue, was but very slowly mitigated; which leads us to presume that the organization of the matter of the adhesion might have been accomplished notwithstanding the appearances of relapse. We may also conclude from it, that the irritated tissue of the serous membrane resisted the disorganization for several months.

If we now compare this disease with those which terminated fatally, have we not sufficiently powerful reasons to think that if, instead of being in a state of repose, and on a regimen—the patient had been exposed to laborious exercises, sated with heating food, and harassed with irritating drinks—that an effusion would have been formed in the midst of the still fragile filaments of the adhesion, which would have divided them, and permanently separated the two surfaces.

In the succeeding case, the success was not as complete as in that of Gayon; but it will afford new proofs in favour of the means that we have proposed to destroy inveterate phlogoses.

CASE XXXV.—*Chronic pleurisy.*—Rouvret, aged twenty, dark complexion, slender, pale, contracted chest, entered the hospital of Udine, on the 13th of April, 1807, for a chronic affection, whose origin he thus accounted for:—Eighteen months previously, he, with two of his brothers, had experienced an acute fever, from which the latter had perished. Three emetics were given to him, which caused pains in the left side of the chest. He stated in the most positive manner, that he had not suffered from them before this disease, and that the pain had supervened whilst straining when he took the first of these three emetics. The disease was cured, but the painful spot remained, and rendered walking very difficult. Under these circumstances he was drawn in the conscription, and obliged to travel in the baggage waggons in order to join his corps. During this time, he coughed much, expectorated an abundance of mucous, sanguinolent sputa; he sometimes vomited from the violence of the fits of coughing, and was almost entirely deprived of sleep. Hav-

ing entered the hospital of Udine, he presented himself to me in the following condition:—

Face lengthened expressive of pain, dyspnœa, bubbling respiration with a convulsive gasp at each inspiration, sensation of suffocating compression, from time to time fits of violent coughing, during which he expectorated mucus mixed with much blood. The pain in the side was violent, continued, and so much augmented on being touched, that the patient could not bear percussion, and even the weight of the bed clothes was insupportable to him. It extended from the third left true rib to the last false rib, in all the anterior and lateral part of the thorax. Pulse frequent, active, and developed.—Rigid diet, demulcents, emollient fomentations, or cataplasms.

The 27th of April, fourteen days after his arrival, more febrile heat, the frequency of pulse about the healthy standard, but its activity and hardness did not correspond either to the strength or the temperament. The chest was still very painful, the expectoration thick and abundant.—Vegetables, milk, and demulcent diet, some doses of opium.

The 16th of May, appearance of a complete convalescence. It was several times necessary to diminish the quantity of food, which, when too rapidly augmented, occasioned dyspnœa, pains in the chest, and hardness of pulse. He still was able to eat a quarter allowance only. Pulse always a little hard and thrilling.

The 1st of June, perfect health; the chest bears percussion, which is as sonorous on the diseased as on the opposite side. He eats a three-quarter's allowance.

Rouvret was discharged a few days afterwards, but at the end of a month he was readmitted suffering almost as much as on his first admission. The same means were employed with the same success, and when I lost sight of him he was doing tolerably well, but hoping for his discharge, because he could not perform his military duties without being exposed to a return of the symptoms of catarrh and pleurisy.

Observations.—If we dare to place any confidence in external symptoms, we must recognise in this patient, a chronic pleurisy of eighteen months standing, which suddenly became complicated with phlogosis of the parenchyma. This phlogosis was mitigated by regimen and antiphlogistic medicaments; but the pleurisy was

not perfectly cured, as was proved by the relapse supervening two months later.

Do these transient irritations of the parenchyma, which always bring back the fever, depend on the compression it experiences from the effusion? The already dull sound of the diseased side induces me to presume it. I also think that if the complexion still preserved a good appearance, it was because the compression of the lobe was not very great. It was also, in my opinion, because the lung still preserved all its integrity that it so strongly testified its suffering, as soon as the collection augmented somewhat more rapidly than usual, or even when plethora and exertions which accelerated the circulation suddenly caused an extraordinary swelling of it.

But if the collection were already sufficiently great to produce the effect of which we speak, it had broken the adhesions and transformed the matter which ought to form them into inorganic bodies, into true foreign substances. Hence, although the disease had scarcely deteriorated the principal apparatuses, it must already have been incurable:* I presume it to be so. Nevertheless, is it impossible that these brief phlogoses of the lungs were nothing but the sympathetic effect of the irritation suffered by the pleura? or could not even the fibres of the new adhesion yield sufficiently without breaking, to permit the exhaled fluid to compress the parenchyma, and afterwards contract in proportion as it was resorbed? Who would dare to hope it? Nevertheless, we know that the most serous part of the effusion may be taken up by the absorbents, (see Case 19,) and several post mortem examinations have demonstrated to us that the adhesions sometimes become very much lengthened before they break.

Be this as it may, the case of Gayon, (Case 34,) has proved to us that several febrile exasperations do not interdict the hope of a cure; we now know, that it is by a rigid diet and antiphlogistics that patients can be restored to a state of apyrexia; that it is by light gelatinous food, but so managed as not to hasten the return of the plethora too much, and by depriving patients of the stimulus of heating medicaments, that we can maintain this apyrexia. The more facts accumulate, the more we are convinced

* I have refuted this assertion in the notes to page 229.

that to prolong this state, is to prolong life: hence, either if we hope to cure, or wish only to alleviate the sufferings and retard the fatal moment, we should always follow the same plan.

Since experience has convinced us of this truth, I have never deviated from it in the treatment of the chronic diseases of the chest which I refer to chronic pleurisies. I have said that these affections are not rare, especially in military hospitals. I constantly had three or four of them at a time under my care. Gayon is the only one whom I regard as cured. As to the others, I have relieved them so much that they several times believed that they had recovered; I was in the habit of proving the contrary to them, by permitting them to take a walk out of the hospital, or by suddenly augmenting their food. The result always was an increase of dyspnœa, with some degree of fever, which rendered them more docile, and induced them to submit more patiently to the treatment which I had told them would alone be proper for them. Among these patients, deducting those who died, and whose examination I have related, some remained in the hospital in a desperate state, after having experienced several returns of the febrile state, generally from their own fault; others, more docile, or less seriously affected, regained sufficient strength to leave the hospital and take advantage of the discharges that were made from time to time from their regiments. As all these cases presented the greatest uniformity, I will content myself with detailing one only, to give a fresh example of the influence of external agents on the progress of chronic pleurisies.*

CASE XXXVI.—*Chronic pleurisy.*—Rivet, aged twenty-one, dark complexion, corpulent and robust, in marching from Brittany to rejoin his corps in Holland, in the month of February, 1806, from the influence of cold, contracted pains, which afterwards attacked different parts of the body, finally became fixed in the left side of the chest, from the last rib to the xiphoid prominence. Counting from this time, he always had laborious respiration whilst marching or ascending stairs, and fits of

* Dishonest persons have argued, from the small number of cures reported in this work, that the practice of the author was unfortunate. This reasoning is absurd. It depended on myself only to have acted quite differently, for there is no physician who cannot, when he pleases, compose volumes with his cures: but I wished to be useful, and not to praise myself to attract patients.

coughing and sneezing occasioned a sharp pain in the affected spot.

Four months and eighteen days passed without any other complaint. The 13th of July, a febrile action of the most violent character took place, accompanied with the local symptoms which characterize pleuro-peripneumony, and the fifth day after this attack the patient entered the military hospital of Udine.

He was twice bled from the arm, and as the cough was always violent and frequent, the expectoration clear and difficult, and the pain lost nothing of its intensity, I applied leeches on the suffering side. Regimen and antiphlogistic medicaments were added to these first means. On the 20th of August, the thirty-seventh day of the exacerbation, the thirty-second of the treatment, the inflammatory apparatus appeared entirely dissipated, appetite returned, and every thing seemed to be restored to order; but the expectoration did not become thick and opaque, as it does in the resolution of peripneumonies.

Examined on the evening of the 23d of August, the third day from the disappearance of the febrile action, Rivet offered me a hard and somewhat accelerated pulse, hot skin, suffused cheeks, and I observed that the dry cough persisted. The same examination, repeated on the following days, convinced me that the apyrexia did not exist, except during the day, and that the nights were always marked by a febrile exacerbation. I observed that the complexion was of a straw colour, that there was no increase of strength, and that the side was obscurely painful and returned a dull sound. I judged that there was chronic phlogosis of the organ of respiration. The interrogatories which were made to the patient furnished me then with the detail of facts with which I commenced the account of this case, and I recognised symptoms of a chronic pleurisy, which, in its progress, had transiently implicated the parenchyma, but which had returned to its original simplicity.

The patient was treated with demulcents, slightly aromatized pectoral potions, some grains of opium and ipecacuanha in the form of pills, by farinaceous and gelatinous food, the digestion of which I endeavoured to aid by small doses of red wine.

The 2d of September, the fiftieth day, the complexion was fresh, the nocturnal exacerbation no longer appeared; in short, Rivet appeared to enjoy the best health, but as soon as he

took a little exercise, the oppression, the cough, the pain in the side and the frequency of the pulse were renewed.

I endeavoured to remedy them by some doses of powdered squills combined with calomel in the form of pills, under the title of a diuretic and *discutient*, to resolve the *infarction*, which, according to certain theories, may be supposed to exist in the pulmonary parenchyma. The return of the frequency of pulse, of cough, and burning heat, soon obliged me to renounce them. I again placed the patient on his first regimen, fully resolved not to suffer him to deviate from it; but I determined at the same time to try the cautery on the parietes of the chest. After keeping it open for a month, (the seventh, counting from the first attack,) the patient felt himself so well that he asked to be sent to the depot of his corps to await his cure. I could not refuse him: he therefore set out, but having taken a walk on the very day of his dismission, the cough, dyspnœa, and frequency of pulse returned.

This man was discharged some months afterwards, as incapable of sustaining the fatigues of a military life. At the time of his departure he was in a worse state than when he left the hospital.

Still, these cases afford examples of the most successful treatment of which I can give examples. I have no doubt that hereafter, cures of chronic pleurisies, apparently more desperate, will be obtained, if the demulcent and negative treatment proposed by me be persevered in; for it is impossible to determine *a priori* how long a time a phlogosis requires to irreparably alter a tissue. It is only by a comparison of a great number of facts, that we shall obtain, on this question, data capable of giving to the theories of phlegmasiæ the degree of certainty that the importance and utility of our art require.*

* In fact, nature has a thousand modes of correcting disorganization, or of supplying what is deteriorated, and I now cure chronic pleurisies of which I formerly would have despaired. It is to the repetition of leeches at the commencement, and moxas at a more advanced stage, that I owe this success; for I have found nothing to perfect in the regimen which is here recommended for chronic phlegmasiæ of the chest.

SUMMARY OF THE HISTORY OF PLEURISIES.

1st. *Causes.*

They are immediate or mediate. 1st. *Immediate, or acting directly on the pleura.* We here find contusions, exertions, loud cries, violent cough, wounds of the pleura, the introduction of foreign bodies into the thoracic cavity, in short, every external violence that can injure the viscera of the chest. These causes most generally produce pleurisies which commence obscurely, and have a tendency to remain chronic. 2d. *Mediate, or entirely influencing the pleura by the modification of another apparatus.* Here are arranged the action of cold on the skin, or on the stomach, a cause which operates suddenly, and produces violent pleurisies; the chill of fever, and that induced by the moral affections, as well as the sanguine congestions, which these affections determine in the pulmonary tissue. This cause gives rise to latent and chronic pleurisies, rather than to such as are evident and acute. The energy of these causes is augmented by the state of plethora, and permanent irritability, whatever may be their origin, and however maintained, and by the narrowness of the thoracic cavity, especially in sanguineous and in other respects well-developed subjects.

2d. *Development.*

1st. If the pleurisy proceed from an active cause in a vigorous subject, it commences by chill, fever, violent pain in the side, and a strong and dry cough, which is checked by the pain. In its highest degree, and when the phlogosis occupies the two cavities at the same time, or the serous membrane of the heart, there are universal pains in the thorax, most violent in the region of the heart, augmented by all concussions of the body; immobility of the chest; fearful anxiety, and febrile circulation. 2d. When the pleurisy arises from a not very active cause, and in a debilitated individual, it is developed by a pain in the breast, at first vague and scarcely sensible, without fever, and finally assuming the character peculiar to this disease; or still more perfidious, existing for a long time without frequency of the pulse, and without pain, and not manifesting itself except by the dull sound indicating the collection of the product of the phlogosis.

3d. *March and Progress.*

1st. Acute pleurisy, badly treated, or interrupted in its march by the excess or want of strength of the patient, may degenerate into the chronic state.* We then observe a cessation or diminution of the pain, its extension through the whole cavity, and an appearance of convalescence; but also persistence in the frequency of the pulse, want of restoration of the forces, and colour of health, return of dyspnœa, fever, and the symptoms of pleuro-peripneumony, from any excess; and a more or less dull and full *sound* returned by the diseased cavity on percussion. There is no other possible termination to this degree except death.† 2d. Pleurisy arising from a hidden or slight cause may, after some time, be analogous to that succeeding to the acute form; sometimes it is much less evident, and is only recognisable by a decay which coïncides with the want of resonance in one or both cavities.

4th. *Termination, and Organic Disorders.*

1st. Every pleurisy cured after the first inflammatory effort, that is, in the first three weeks, terminates by the adhesion of the phlogosed surfaces. 2d. Those that are fatal in the same space of time, leave as sequelæ, the pleura red, thickened, and covered with a membranous exudation, that is, preserving traces of organization, and a lacteous serosity more or less loaded with white or yellowish flocculi. In some cases we find a pus analogous to that of phlegmon, and sometimes of undecomposed blood, or separated into clots and serum. 3d. Pleurisies may be considered chronic at the end of fifty or sixty days; but their longest duration is yet to be determined: they have been seen to protract themselves more than three years.‡ Pleurisies are curable to a period which is not yet determined, but which is presumed not to exceed two or three months.§ The cure still takes place by adhesion. 4th. Very chronic pleurisies, with absence of resonance of the affected side, those, above all, which have an obscure development, are necessarily fatal; the sooner there is a

* It is not perfectly proved that debility is directly opposed to the cure of phlegmasiæ of the viscera; it is rather by leaving them exposed without reaction to the influence of cold and some other causes capable of determining new internal congestions, that it can occasion the protraction of these diseases.

† I have already nullified this too positive assertion.

‡ I have seen some of longer duration; but they generally terminated in phthisis.

§ It extends much beyond this period.

return of the acute state with symptoms of phlogosis of the parenchyma, the sooner life terminates: hence those most free from fever are the longest. 5th. When chronic pleurisies have often been febrile, induration and dry or suppurating tubercles of the parenchyma co-exist with the disorders of the serous membrane. These disorders, equally proper to the most simple and most complicated pleurisies, are, with the exception of those appertaining to the acute state, lardaceous degeneration, small tuberculous depots in the tissue of the pleura, decomposition of the false membrane and its reduction into a pulpy, caseous matter, larger or smaller masses of this matter in the most depending part of the cavity, or spread like a sheet over the serous membrane. 6th. When the fever has been violent before the termination, the anxiety considerable, the decay rapid, and the excretions very fetid, we sometimes find the pulmonary pleura gangrenous, and even perforated by an ulcer of the parenchyma, which communicates with the fluid of the cavity: then this liquid is decomposed and insupportably fetid.

5th. *Method of Cure.*

1st. We contribute to diminish the violence of the inflammation, in the acute state, and in the transient exasperations of the chronic, by general, and more especially by local bleedings, the most rigid diet, and by aqueous, mucilaginous, and acidulated drinks. 2d. We invite the irritation and fluids from the phlogosed spot, and favour the formation of adhesion by warm fomentations, and by all means that keep the skin in a state of moderate warmth, by frictions, baths, vesicatories, and rubefacients, by absolute rest, and by narcotics. 3d. We continue to act in the same manner in cases of chronic apyretic pleurisies, by taking particular care to nourish and repair the forces, without exciting fever: we then join to the means just indicated exutories or artificial suppurations.

6th. *Complications.*

Of all the diseases which may complicate pleurisy, pericarditis and pneumonia are the most common. On this account I have been obliged to connect the descriptions of these three diseases together. As to other phlegmsiæ, they are recognisable if they take place by their proper symptoms; sometimes even they become sufficiently predominant to mask the pleurisy. The complication with intermittent fevers demands the promptest suppression

of the paroxysms. Continued fevers may doubtless complicate pleurisy; those with exaltation of the forces render it most evident, and do not exact a different treatment. The adynamic and ataxic may mask it, and will add to the danger that exists.* We should combat them, therefore, first by the treatment which is appropriate to them, in taking care, however, to suspend the use of stimulants the moment that the pectoral symptoms appear to be exasperated. The fever having terminated, the pleurisy must be treated as we have advised to be done in all the cases where it is chronic and insidious.

ADDITION TO PLEURISIES.

Having perpetual opportunities of observing pleurisies, I can add something to what has just been perused.

Acute pleurisies checked at their commencement by leeches, &c. usually produce an effusion, which is gradually resorbed in the space of some weeks, as has been correctly remarked by Dr. Laennec. During this interval they are unattended with fever, and the diminution of the dull sound, as well as the gradual development of the affected side, which was at first sunken, indicates this happy termination: it is to be aided by exutories placed over the affected spot; and if febrile action supervene, the application of leeches may be renewed.

The upper part of the opposite lobe is liable during this period to become inflamed: in this case, the pulse becomes febrile and enlarges; resonance appears less clear below the clavicle, and the stethoscope enables us to distinguish there a sort of rhonchus, depending on the mucosity secreted in the bronchial cavity. This symptom is to be remedied, and the development of a pneumonia with carneous degeneration which would induce phthisis, prevented, by applications of leeches under the clavicle, and by diet.

The abundance of the pleuritic collection, when it occupies the left cavity, may force the heart towards the right side, and occasion pulsations even below the nipples, as we have seen in the case of Pellegrin. This case is serious, the patients are suffocated by the compression of the heart and by the congestion of blood

* These diseases being themselves but phlegmasiæ, cannot induce any change in the treatment above advised for pleurisies and all other inflammations of the chest.

in the right lung, which inflames and suppurates, especially in its superior part. Leeches, which are advantageous at first, are not the best remedy for this complication when the disease is already very chronic; I have even thought that they might augment the effusion by producing the destruction of the already too much compressed parenchyma. Notwithstanding the inconveniences of the operation of empyema, I do not know whether in this case it would not be expedient to perform it, in order to moderate the excessive dyspnœa, and to prolong, at least some days, the life of the unfortunate patient. But I confess I have not yet dared to try the operation.

Sometimes the inflammation perforates the costal pleura, and the effusion is perceptible on the exterior by a fluctuating tumour, without a change of colour in the skin; and which manifests itself when internal by a dull sound. I have sometimes checked the progress of similar tumours by thirty moxas placed over and around them, aided by frictions of mercurial ointment, by diuretics, and by an appropriate regimen.

But if unfortunately these means are employed too late, a purulent infiltration into the whole subcutaneous cellular tissue of the diseased side takes place, the skin bursts at the most inflamed spot, a fistula is established which pours out very fetid pus, hectic fever is induced, and the patient perishes in a state of consumption. Post mortem examination always discovers, independently of the inflammatory disorders of the pleura, lungs, ligaments, &c., traces of phlegmasia in the internal membrane of the digestive canal.

How many evils may be prevented by checking pleurisies at their onset, by repeated local bleedings followed by blisters! This practice is always successful,—whilst by permitting the disease to advance, and waiting for crises, we are almost certain to leave a nucleus of chronic phlegmasia and inevitable disorganization. Not many years since, we had occasion, in military hospitals, to discharge a great number of soldiers, who went home with one of the thoracic cavities filled, and always because they dissimulated their sufferings for several days, hoping, in their own words, that *the disease would go as it came.* It must be confessed, however, that old soldiers do not commit these imprudencies, and that we have only ourselves to praise for the confidence they testify in us. But it is not so with recruits, who but too often deceive the vigilance of their surgeons.

ARTICLE SECOND.

LYMPHATIC INFLAMMATIONS OF THE LUNGS.

In dividing inflammations of the lungs into sanguine and lymphatic, we do not go beyond that which it demonstrable. We observe in the dead bodies of those who have been destroyed by catarrh and peripneumony, a large and thick fasciculus of capillaries gorged with blood. This fluid is found in such abundance throughout the tissue of the lungs, as to impart its colour to these organs. Every class of vessels, the bronchiæ and the whole network of cellular tissue by which they are united, are either filled with blood, or so effaced by the development of the engorged red capillary vessels, that at first we see only a red homogeneous substance, without a trace of organization.

Moreover, the pleura, attentively examined, presents to our view, subsequent to inflammations in which the sanguine activity had predominated, a tissue, the vessels, the cells, and even the fibres of which appear to be penetrated with red globules. This membrane is thicker, it is easily separated into several red cellular layers, and if compressed, will yield small drops of blood.

We have endeavoured particularly to fix the attention of our readers upon the morbid phenomena, which show the natural tendency of the viscus of respiration to this sanguineous disorganization. We have freely imparted the information we possess relative to the curative measures for this species of disease, and we have more than once lamented our slender stock of knowledge in relation thereto.

In our division of pulmonary phlegmasiæ, we have mentioned a disorganizing inflammation, which is maintained by the alteration of the fasciculi of lymphatic capillaries of this organ. Indeed, inspection will shortly demonstrate to us, that the irritated lymphatics can, in their turn, overcome the sanguine capillaries by their development and generation, or induce their destruction by forcing them to an extraordinary action. The species of disorganization which results from it, entirely different from the first, is still more frequently fatal, and unfortunately much more com-

mon. Like the first, it is known by certain derangements of the functions. In the pleura, we have already seen, that the same phenomenon may occur. Therefore, the same organs are the seat of two species of disease; one caused by the defect of the sanguine, the other by that of the lymphatic capillaries.

We devote this second article to the exposition of the facts we have observed, and which appear to us to best represent the last mentioned affection. We shall present a summary of those which it will be found impossible to give in detail, and we shall freely submit our reflexions.

It is acknowledged by every practitioner, that a great number of individuals perish from the development in the lungs of certain white, rounded bodies, termed *tubercles*. It is admitted, that the suppuration of these bodies produces the destruction of the organ, hectic fever and emaciation;* in short, that the disease called *phthisis pulmonalis* is frequently the result. But we are far from attributing all phthises to tubercles. Of all the authors who have treated of this disease *ex professo*, Doctor Baumes has certainly most profoundly investigated the subject; he seems even to have exhausted it. What, in fact, remains to be said, after all the causes capable of occasioning the destruction of the lungs, have been brought together with such labour—after the varied and numerous symptoms which accompany this destruction, and the general dissolution which follows in its train, have been traced with such minute precision?

It appears to me, however, that the reflexions which were suggested to us by the affections of the lungs previously studied, ought to point out the possibility of remedying the confusion that still prevails in this immense undertaking. Surely attention cannot be too frequently called to all that is capable of in any way implicating an organ so important as the lungs; but has not Doctor Baumes, in assigning and classing the causes with so much wisdom, too greatly multiplied the effects? Can it be be-

* It is not the tubercles which cause the suppuration of the lungs, hectic fever, and death; it is the inflammation of the mucous or serous membranes, of which the former themselves are the effects. In other words, the inflammation does not commence in the tubercles, which would gradually develope them, induce suppuration, and afterwards penetrate into the parenchyma and the mucous and serous tissues. The progress of inflammatory irritation is directly the reverse.

lieved, that if he had opened the bodies of all the subjects who succumbed to pulmonary consumptions, of which he makes particular species, he would have preserved his numerous divisions? Would not Portal, who does not admit near so many, have been obliged to still reduce them if he could have opened a sufficient number of bodies, to characterize better the various pulmonary affections which he had cured, and which he describes as phthisis? Such for example, as those authors call *mucous*, are they always true phthises? And when they are, is it absolutely necessary to separate them from the others? If they could have examined a sufficient number of bodies to properly appreciate the disorders which result from a fatal catarrh, and that they, like me, had found sometimes an induration, or a pleurisy, at others a tuberculous affection, would they have ventured to flatter themselves, that, in curing a catarrh, they had triumphed over an ulceration of the lungs? Would they have believed that a catarrh which leads to consumption, with purulent expectoration, is altogether different from the phthisis which they styled *tubercular*.

I did not, in the midst of camps, enjoy the advantage of being able minutely to study all the authors who have written on the diseases of the lungs; however, I am sufficiently well acquainted with them unhesitatingly to declare, that but few of them have met with true ulcers of the lungs without tubercles, that is, without a particular development of the lymphatic system.*

Has the absence of tubercles in the phthises called *psoric*, *scorbutic*, *rheumatic*, in those resulting from peripneumony, venereal virus, a collection of critical humours after intermittent or continued fevers; in those caused by the suppression of the lochia, of any hæmorrhage whatever, and of habitual discharges; in those produced by the small-pox, measles, scarlatina, and hooping cough—been proved by proper post mortem examinations, made by persons accustomed to this species of study? Have these pretended phthises, from a concentration of the forces and fluids in the lungs in nervous, hypochondriac, and melancholic affections; and those which occur in women subject to

* The investigations I have been constantly making since my return to France, seven years ago, concur with multiplied autopsies, to convince me that the lymphatic system is always affected in chronic phlegmasiæ of the chest, and that it is consecutive to these phlegmasiæ.

hysterics, exhibited ulcers of the lungs without tubercles? Is it satisfactorily proved that when the phthisis termed nervous and inflammatory, which takes place in persons of delicate, sanguine, irritable habits and strong passions, produces consumption, expectoration of pus, and death, that there remains only the traces of suppuration without tubercles? How do all those destructive excesses which appear to engender phthisis, such as excessive enjoyment of women, frequent watchings, debauchery, nocturnal studies, great exertion in singing, playing on wind instruments, violent efforts, &c., all occupations which expose the bronchiæ to emanations capable of exciting a fatal phthisis, disorganize the lungs? Is it by producing in them sanguine phlogoses, followed by ulcers? Is it by causing tubercles, or by favouring the development of an innate tuberculous disposition? Is it not sometimes by ulcerating the mucous membrane of the trachea, or rather of the bronchiæ?

Will a physician accustomed to account to himself for what he sees, admit, upon the assertions of a host of authors who for many centuries have copied each other, this vast variety of phthises, for which they give symptoms frequently contradictory? When we have decided on giving this name only to consumptions caused by the destruction of the lungs, can we give it to the ill-described affections of this organ, which have been easily cured, or which have become fatal without our having had the curiosity or the means of examining the state of the organs? Then again, can the anatomist, accustomed to the appearance of the viscera after various diseases, believe vague reports, founded upon dissections which certain authors have had made by their pupils, or have negligently performed themselves? It is solely the habit of examining bodies which can answer to posterity for the exactness of the descriptions recorded in works on pathology. How many volumes will soon be rendered useless by improvement in the method of observation!

I do not pretend to weaken the confidence accorded to authors known to be veracious and sincere; but why have not such judicious observers of the living system as Sydenham and Pringle, examined the remains of a greater number of the victims to the scourges of society? Pringle especially, who practised in the midst of camps, why has he opened only one or two of each species of disease? Can exact comparisons be established by so

small a number of autopsies? Could the celebrated Professor Pinel have rectified the plan of his nosography,* without a great number of post mortem examinations.†

Then let it not be thought a crime to reject every classification of phthisis hitherto established, and to propose, in order to improve the theory of this affection, the examination of some facts collected with great care, and compared with each other by the light of modern physiology.

It is in the army that the most multiplied causes of phthisis are met with. The conscription enrolls the young of every temperament, of every pursuit, of every condition, from every station in society: it takes them at the most favourable age for the development of this disease. If they be placed in the list of warriors, they find themselves surrounded by all the causes capable of weakening the organ of respiration; the impressions of cold, bad food, excesses of every kind, enforced labour, violent exertions, laborious marches, and even obliged to run with heavy burthens, which perpetually prevents the expansion of the tissue of the lungs; nothing is wanting that can create and maintain a disorganizing irritation in these organs. Thus it is hardly possible that a person predisposed to pulmonary phthisis should not be arrested by this disease in following the career of glory. Scarcely has a military hospital been established a few months, before consumptive patients begin to accumulate in it. Some sink rapidly; others languish, and, after several appearances of recovery, meet the same fate. During the three years that I have been making observations on this vast theatre, I have opened the bodies of all those whom I saw die with phthisis: I found one only who had an ulcer in the lungs without tubercles, and this was owing to the presence of a foreign substance. Tubercles, nothing but tubercles! This is the most general and uniform feature of resemblance.‡

Notwithstanding this uniformity, all the symptoms of phthisis require to be studied anew and more profoundly, and this is also

* From νοσος, disease, and γραφω, I describe; a description of diseases. It is nearly, if not perfectly, synonymous with pathology.—Trans.

† I might, since the example has been given me, have suppressed such praises; but I must preserve them, as the rest of the text has not been changed so as to enable me to depart from the preliminaries. Besides, these praises were given in sincerity, before I had entirely recovered from my error. And why should we not praise a good intention?

‡ However, after inflammation.

demanded by the necessity we feel of elucidating the diagnosis of other chronic diseases of the chest.

In fact, the mechanism of phthisis being but imperfectly known, its various grades, the external symptoms which correspond to them, and the relations which connect it to other affections, must be equally so. Consequently, we nowhere find a well-contrasted comparison between the organic diseases of the respiratory apparatus and the morbific symptoms which have preceded or induced its destruction. The bodies of those who have died of phthisis create so great a repugnance, especially since some celebrated authors have sanctioned the opinion of the contagious nature of this disease, there is so little hope of improving the subject of therapeutics by examining them more attentively, and it is so generally thought that this subject is completely exhausted, that we are satisfied with casting a mere superficial glance on the remains of those who die of this disease. Content with having united the idea of a hectic fever with that of an ulcer of the lungs, nothing further is demanded; and it is decided, thousands having done so before, that phthisis is incurable, and those labouring under it are therefore abandoned!

The still existing ignorance on the subject of the various grades of phthisis, and of its affinity to other diseases of debility, produces another inconvenience which it is important to remedy. We believe that we have cured a phthisis when we find that the chronic affection of the chest has yielded. We boast of certain formulæ, of which the ignorant make a bad use, and when we see an affection, apparently little to be dreaded, terminate in phthisis, we feel disconcerted and disposed to a scepticism as distressing to him who experiences it, as it is dangerous to those who may place confidence in him.

It is from having often found myself, and from seeing others as well versed in the practice as they were familiar with the works of the best authors, placed in this painful situation, that I was induced to study in the dead as well as in the living, all the disorders of the chest that I met with in my military practice. Now that I possess a sufficient number of facts to enable me to draw from them some useful conclusions, I hasten to produce them, in order to induce those who have been gifted with the precious talent for observation, to prosecute this species of research, to confirm the truths I may have discovered, and to

rectify the errors I may have committed. Many physicians may attend numbers of consumptive patients till their death; but very few have either the leisure or the means of personally tracing the history of the cases, or of making post mortem examinations.

The chronic inflammation which destroys the lungs, we have said is almost always maintained by a degeneration of the lymphatic fasciculi with which the tissue of these organs is filled. Various causes may induce and occasion this species of alteration: we shall enumerate them hereafter, but we must now content ourselves with announcing that the most common of all is *phlogosis of the fasciculi of sanguine capillaries.* Whether it originated in the mucous membrane and in the parenchyma, or developed itself in the tissue of the pleura, it is sufficient for it to continue beyond the term of acute inflammation, to expose the white fasciculi to receive that impulse which conducts sooner or later to disorganization. Since the peripneumony, the catarrh, and the pleurisy we have just described in their chronic state, can engender tuberculous phthisis, we cannot proceed more methodically to the study of this disease than by considering it at first as an effect of these three phlegmasiæ. We shall therefore collect in the first chapter the peripneumonies and catarrhs which have insensibly taken the character of phthisis by becoming tubercular. In a second, we shall see this disease succeed to chronic pleurisy. These two principal sources of pulmonary consumption having been examined, we shall in a third chapter compare the causes designated by authors as producing what is termed *accidental phthisis:* this chapter is wholly devoted to the discussion of the theory of this species of phthisis. The fourth will treat of *spontaneous* or *constitutional phthisis:* the fifth will present *a general history of phthisis:* and the sixth, the *treatment* of this disease and of its numerous varieties.

CHAPTER I.

Tubercular Phthisis dependant on Chronic Peripneumony and Chronic Catarrh.

The best characterized phthises are those in which the irritation of the sanguine capillaries performs the principal part. If then we wish to proceed from the most evident to the most obscure, we must first of all fix our attention upon those phthises in which the sanguine phlogoses, originated and fomented at first in the mucous membranes and the parenchyma, has preceded the lymphatic phlogosis and has afterwards been violently exasperated by the latter. From this combination of causes and reciprocal effects, there results a kind of peripneumony terminating in phthisis, which, in its highest degree, makes such rapid progress that death takes place by a general induration or rather by a sanguineous engorgement of the parenchyma before the formation of ulcers.

This grade, of which we will give an example, appears to be the effect of a predisposition of the whole pulmonary lymphatic apparatus, which it is as impossible to foresee, as it is to arrest it in its fatal explosion.

CASE XXXVII.—*Chronic tubercular peripneumony.*—Roquet, aged twenty-four, chesnut-coloured hair, delicate frame, short, florid complexion, skin white and transparent, had been from twelve to fifteen days at the hospital of Nimeguen, during the course of Germinal, an. XIII. for a catarrh which he said he had contracted accidentally. He left it to all appearance cured, and returned a few days afterwards, but in a very different state. He had violent fever, increasing at night, cheeks very red, much dyspnœa, burning heat, and constant sweats. He from that time commenced to expectorate copiously puriform matter, sometimes of an opaque white, sometimes bloody, and sometimes like lees of wine, and, as it were, granulated, but always consistent and very fetid.

After seven or eight days use of emollients, blisters, &c. there was an abatement of all the symptoms, and the patient conceived

great hopes, although the dyspnœa at night was considerable, and the pulse was still hard and frequent, with heat of skin.

During the eight following days, he had again several alternations of violent reaction and a return to a more quiet state. Thus considerable dyspnœa with hardness of pulse, violent heat, excessive and distressing pain in the chest, threatening of suffocation, and anxiety of countenance appeared, and to this storm a calm of from twenty-four to forty-eight hours succeeded, during which the prostration was extreme. In the last intermission the voice of the patient could not be heard. In none were the burning heat and the frequency of the pulse entirely suspended; and Roquet became more quickly emaciated than usually occurs in simple peripneumony. Finally, on the 12th Prairial, at two o'clock in the morning, he suddenly expired. The duration of the febrile attack, calculating from the relapse, did not exceed twenty days.*

Autopsy.—*Habitude.* Marasmus in the second degree. *Thorax.* The two lungs were found indurated nearly throughout their substance. In the anterior near the base of the right lobe, there were some cells which were crepitant: all the rest was hard, and of a yellowish-red colour with white spots. These spots, upon examination, appeared to consist of tubercular matter. They were particularly abundant in the superior part of each lobe, where the pulmonary substance was falling into a state of dissolution, *(deliquium,)* or appeared under the form of a brown fetid pulp; but no well-defined purulent abscess or tubercular granules could be distinguished. The white matter appeared to be distributed in the sanguine induration, and the cavity which circumscribed each separate collection of this matter was of an irregular shape, instead of being round, as it would have been if it had been only the remains of a dissolved tubercle. Both lobes adhered throughout their whole circumference by very solid and well-organized substances.

The violence of the reaction corresponds too well with the extent of the red induration for any one to refuse acknowledging in this case of phthisis, a predominance of the sanguineous system, which assimilates it to peripneumony and catarrh. The three cases which follow will present a grade of peripneumony rather less defined.

* But it must have been preceded by chronic catarrh.

CASE XXXVIII.—*Chronic tubercular pleuro-peripneumony.*—A soldier, from twenty-five to twenty-seven years of age, who had been a long time at the French military hospital of Breda, for suppuration of a testicle, entered that of Nimeguen on the 27th Florèal, an. XIII. He said that his chest had been affected for about six weeks, and that the attack commenced with the ordinary symptoms of a cold. This man had light-coloured hair, was of medium size, and well-proportioned. His thorax was developed, muscles moderate and well-turned; skin with loss of colour, no doubt owing to his residence in hospitals. His cheeks alone presented a regularly circumscribed rose colour, which, contrasted with the yellowish white of the surrounding parts, indicated the affection of the lungs.

He stated that his cold had gradually increased until it confined him to his bed. Be that as it may, I observed there was excessive dyspnœa, no fixed pain, frequent cough without expectoration, pulse frequent, strong, hard, and full.

As the colour of the cheeks was very bright, the heat extreme, and the patient earnestly entreated every moment for relief from his oppression, I promptly resorted to bleeding from the arm; but admonished by the general loss of colour, by the limited resources of such a subject, I was careful to detract a moderate portion only of blood. The patient was exceedingly relieved. I immediately had recourse to a blister and the use of demulcent pectorals.

The next day, 28th, all the symptoms were increased: the expectoration which relieved the patient was suppressed. The suffocation appeared much more imminent than on the previous day. The patient requested that the bleeding might be repeated: although I considered him beyond hope, I thought that this slight relief should be afforded him, and he was bled two ounces, and at the same time mucilaginous and etherized juleps were administered.

The night was passed quietly, the expectoration returned the next day, he said he was very well; but on the approach of evening, the violence of the fever, the fear of strangling, which kept him in the most horrible uneasiness, induced him to renew his entreaties to be bled a third time. I did not hesitate to consent, and he congratulated himself upon it the next day. In the evening he again made the same request, but the progressive sinking of the pulse forbade the use of this remedy, and I em-

ployed in its stead during the two succeeding days by draughts containing large proportions of opium and ether. Finally, he passed from this state of anxiety into a violent agony, notwithstanding which he retained his reason until almost the last moment.

AUTOPSY.—*Habitude.* The body was slightly emaciated, but far from being in a state of marasmus. *Thorax.* Both lobes adhered to the parietes by a cellular, tender, reddish production, which could be removed from the surface of the two pleuræ, without in the least impairing their smoothness: but these membranes appeared redder and thicker than in their natural state. The parenchymata of both lungs were filled with tubercles not exceeding the size of lentils. These tubercular granules formed the greater proportion of the mass. They were not of a dull white, but of a pinkish colour, and the red tissues which surrounded and separated them were so engorged with blood that it followed the knife in streams. The parenchyma was in a measure permeable to air, and it was still slightly crepitant. Nevertheless, though the induration was not complete, the engorgement was so considerable, and the pulmonary capillaries so developed, that the lungs might be considered as disorganized. There was no abscess. The mesenteric glands were increased in size.*

CASE XXXIX.—*Tubercular pleuro-peripneumony.*—The 28th Brumaire, an. XIII. there was received into the hospital No. 3, at Bruges, a man from thirty to thirty-two years of age, with dark hair, florid complexion, emaciated, and having muscles tolerably well marked, although not prominent. He could not give an exact account of the commencement or progress of his disease; but I observed prominent features, swollen eyes, the face uniformly of a deep red colour approaching to violet, tongue dry, thirst, inexpressible sensation of uneasiness to some considerable extent in the upper and superior part of the chest. He felt greatly oppressed, and the cough was so painful that he exerted himself to suppress the paroxysms. He expectorated little, and only mucus. His respiration did not appear either labo-

* This alteration would induce the belief of enteritis, which I did not even suspect the existence of at the period of this observation, which was at the commencement of my military practice.

rious or agitated; his ribs were not elevated during inspiration. He had an appearance of stupor and prostration which fully explained why he gave so bad an account of the past. The imperfect oxigenation of the blood had already reduced him to that apathetic state, common at the termination of fatal peripneumony, and which might be called *febrile asphyxia*, if the word *asphyxia* did not convey the idea of absence of the pulse. The pulse was hard, full, and very frequent; heat burning; skin constantly moist.

Blisters, demulcent pectoral draughts, and a little weak lemonade, which seemed indicated by the heat and dryness of the skin, were employed, but they did not prevent him from being the next day in a comatose state, with a violet and agitated countenance. I gave him some camphorated juleps, from which I expected very little,* considering this consecutive prostration as the symptom of the disorganization of the lungs. The third day from his arrival he expired, after a long and violent agony.

Autopsy.—*Habitude.* The body presented more the appearance of an acute than of a chronic disease. The form of the muscles were well preserved, although their volume was diminished rather more than is usual in an acute disease of twenty to thirty days duration. *Thorax.* Adhesion of the two lobes in their whole circumference by a red, flabby, cellular tissue already organized, and as it were puffed up, *(insufflé,)* which rendered the cells interposed between the fibrous fasciculi apparent. On removing this tissue the pleuræ were glossy, but red and less firm than in their natural state. The parenchyma was engorged with blood, particularly at the posterior part, and filled with innumerable round whitish granulations, which crushed easily between the fingers, and yielded a whitish fluid mixed with blood. I observed that these tubercles were larger on the posterior part, where the red capillary tissue approached the nearest by its consistency, to a state of induration; every where else the lungs were very crepitant. *Abdomen.* The lumbar glands were tumefied; the mesenteric had also considerably increased in size, and in their centre were nuclei of tuberculous matter. The other viscera were in a natural state.†

* The adynamic aspect deceived me.

† The examination of the mucous membrane of the small intestines is again wanting.

CASE XL.—*Chronic tubercular peripneumony.*—Dieutier, aged from twenty-three to twenty-four years, chesnut-coloured hair, tall and slender, chest rather contracted, died in the hospital at Udine the 7th of April, 1806, after an illness of six weeks, almost entirely passed under my own observation. I invariably observed a frequent cough, little or no expectoration, laborious and difficult breathing, cheeks continually of a circumscribed very red colour. Active fever, severe and pungent pain, pulse always hard and frequent.

The disease resembled a prolonged peripneumony; the intensity of the febrile action was so great, that an increase towards night could scarcely be perceived, and the expectoration never assumed that opaque colour, indicating a resolution of sanguine inflammations of the chest.*

Dieutier, consumed by this devouring hectic, which could not be alleviated by any general or local bleeding, or by any local, emollient, or revulsive application, ten or twelve days before his death began to emaciate rapidly; his features changed, his skin became foul, his breath fetid; he was every moment threatened with loss of breath, and incessantly tormented with the fear of death which he saw hanging over him. His apprehensions were realized, he was suffocated after having suffered dreadfully.

Autopsy.—*Habitude.* Marasmus in the first degree. *Head.* In an entirely healthy condition. *Thorax.* Lungs engorged, filling the thoracic cavities, but scarcely adhering; their parenchyma engorged, nearly approaching to induration, and strewed with small miliary granules, the largest of which scarcely equalled a lentil in size. These granules were of a reddish white. No abscesses. All the viscera of the abdomen were found in good condition.†

Observations.—Here are four cases of phthisis, which I will venture to call *pneumonic*, from the similarity they bear to pure sanguine inflammation of the lungs. We find them all characterised by being preceded by a chronic irritation of the lungs more or less resembling ordinary catarrh, and by suddenly assuming the appearance of peripneumony.

* This colour often occurs without resolution taking place; the humour then proceeds from the bronchio-tracheal mucous membrane, which secretes it as a wound of the skin secretes ordinary pus.

† Doubt this, reader, as I do.

The patient of Bruges, could not, it is true, answer any of our questions; but the condition of the glandular system of the abdomen sufficiently teaches us, that that of the lungs had a tendency to the same degeneration, and a comparison with three other patients, who declared to me that they had only experienced a common cold before the occurrence of the fever, is sufficient to induce us to believe that the disorder began with him in the same manner as with them; in short, it is evident that in these four cases the too rapid progress of the tubercles occasioned that violent fever, which, constantly kept up by the same cause, consumed life before ulcers could be formed in the pulmonary parenchyma.*

We also see that the stimulus of the tubercles caused the irritation to extend to the pleura: but as the principal point to which the fluids were determined was the interior of the parenchyma, the lungs were constantly distended so as to keep the pleuræ in contact and immoveable. Thus fluids could not accumulate between them. The solid exudation had then time to become organized during the twenty or forty days that the immobility of the parenchyma continued.

I have another remark to make respecting the acute phthisis which we have just noticed. It has been seen that the parenchyma was not firmly indurated, and that the tubercles were of a reddish cast. This fully demonstrates to us that the inflammatory action did not principally exist in the sanguine capillaries, but that the lymphatics participated.†

It may now be asked which of these two orders of vessels were first irritated. In two of our patients, the symptoms of common catarrh preceded the hectic fever. Ought the irritation of the sanguine capillaries which caused the symptoms of the catarrh, to be considered as primitive or as an effect of the obscure progress of the tubercles already formed? I did not see the patients sufficiently early in the period of *incubation* for me to venture to decide; it seems to me, however, that when the catarrh appears

* I do not now consider tubercles to be the cause of fever; for this would be attributing to them the inflammation of the parenchyma upon which the fever depended, and experience has sufficiently convinced me of what I only suspected when I composed this work, that tubercles are the products of phlegmasia.

† This opinion is not at all probable.

accidental, the tubercles cannot be accused of having produced it. But if they afterwards increase and degenerate into phthisis, it is then shown that the lymphatic irritation, put into action by the sanguine, the former is then kept up and increased by the latter. This is what most frequently occurs in the army, where some accident always developes phthisis in persons in whom it might, some time or other, spontaneously have originated, and often even in persons, who, without this, never would have had the disease. This will be demonstrated by the cases of chronic catarrhs degenerated into phthisis, which I shall presently relate.*

Be this as it may, it ought to be sufficient for the classification of the different degrees of phthisis, that the symptoms of sanguine inflammation have prevailed over those which ordinarily indicate the presence of tubercles. This predominance authorizes me to place acute phthisis without suppuration, on the line which separates sanguine from lymphatic inflammations.

I believe it is possible, without being too hypothetical, to ascribe the violence of hectic fever, and the more speedy death than takes place in other forms of phthisis, to two causes: 1st, to the rapid and simultaneous development of a great number of tubercles, which act as irritating bodies upon a lung which had not time to accustom itself to their presence, and which materially alters its organization; 2d, to the extreme irritability of the sanguine system generally, and of the pulmonary in particular.†

If this opinion be adopted it will frequently lead to the belief of tubercles being the result of an accidental cause, that is, as if provoked by the sanguine irritation; for, when these small tumours are spontaneously developed, phthises never appear as acute, and nothing is more simple: like scrofulous phthisis, it would then depend on the extreme debility‡ of the lymphatic system, a result which does not coïncide with an imminently sanguine temperament. Let us examine another phthisis preceded by an inflammation accidentally provoked, which terminated with a violent inflammation very closely allied to the four preceding. It differed, however, in the emaciation being greater,

* The first glimmerings of truth which awakened my attention to the generation of tubercles, are found in this passage.

† This last explanation now appears to me the only one that is admissible.

‡ Substitute the word irritability, in order to speak physiologically.

which was owing to the state of the tubercles.* But let us first relate the fact before commenting upon it.

CASE XLI.—*Rapid, ulcerated tubercular phthisis.*—Girard, aged twenty-four years—chesnut-coloured hair—florid complexion—skin white, transparent, and covered with freckles where exposed to the air—tall, and regularly framed—chest sufficiently large—muscles moderate size—irritable temperament, had received in fencing, in an. XIII. repeated thrusts from a foil on different parts of the chest. He at first experienced pain in this part, followed by a spitting of blood, for which he entered the hospital at Nimeguen. After a short stay, he left it cured. Four months afterwards, he returned with a tertian fever, which yielded to bitters, and at the same time Girard became subject to pain in the subpubic region, with difficulty of urinating. Cataplasms and mild diuretics moderated these symptoms, but did not dissipate them. Such was the origin of the pain in the hypogastric region, and of the frequently alarming dysuria to which he was subject, at the same time that he was wasted by pulmonary consumption.

When I first saw him, 12 Germinal, an. XIII, he was far advanced in phthisis: he lived fourteen days, during which I observed the following symptoms:—

The emaciation was extreme and visibly increasing; he coughed much during the night, and did not expectorate; the fever was active, that is, the pulse was hard and frequent, and the heat of skin considerable, all of which were increased in the evening; the excretions were fetid. I limited the treatment to cordials, anodyne potions, and demulcent topical applications, seconded by nitrous emulsions, in order to excite diuresis.

Girard attained the last degree of marasmus, without the pulse ceasing to be hard and frequent, and the heat of skin dry and burning. He expectorated three or four times during the day sputa similar to that ejected in pulmonary catarrh which is on its decline. His appetite was good until the last day, although tormented by a continual thirst. He suffered but little from his chest, did not appear discouraged, and did not complain of dif-

* Or rather to a less rapid inflammation having accumulated a smaller quantity of blood in the pulmonary parenchyma.

ficult respiration. He was generally tranquil and rather inclined to sleep.

I fed him during several days with milk flavoured with cinnamon, which he relished very much. On the 24th the febrile reäction abated. He grew cold, his strength failed, and the *rattling* came on: he continued in this state a few days without losing his senses. He died tolerably easily.

The total duration of the disorder was about six months, but from the information derived from the patient at different intervals, or which I obtained from those who had previously attended him in the hospital, the hectic had not been well defined except during the two last months of his life.

Autopsy.—*Habitude.* Body, considerable marasmus without infiltration, except in the scrotum. *Thorax.* The whole right lung hardened and presenting numberless small abscesses, the largest of which could perhaps have contained a hen's egg; the greatest number were of the size of a filbert, or perhaps less. Upon careful examination, these small abscesses appeared to me to have contained white tubercular matter, the coats of most of them were still lined with it, and a number of small white points could be seen, consisting entirely of tubercles, quite or partly reduced to a white pulp, and already almost empty. When the pulpy matter was removed, there only remained a hollow cavity in the hepatized substance, and the larger was the cavity the less it contained of this pulpy matter, but on the contrary there was found in it a thin bloody fetid matter which did not exist in the tubercles that were not yet emptied of the primitive lymphatic pus. The left lung presented this appearance in the posterior half only of its thickness. *Abdomen.* The mesenteric glands were gorged, and several contained tubercular nuclei. The bladder was a little distended, and contained a fluid analogous in colour and consistence to turbid whey. Its mucous membrane was not red, except towards the neck, especially at the triangular surface of its inferior part; but it was evidently thick, rugose, and much harder to the touch than it ought to have been in a physiological state. All the other organs were in a good condition.

Observations.—In this case the hectic fever made less rapid progress than in those previously mentioned. It lasted at least two months, that is to say, the sanguine inflammation was kept up in a marked degree during that time. Whilst it was effecting

the destruction of the pulmonary parenchyma, that suffocating oppression which had rendered the death of the four other patients so painful, was not observed. It appears to me that the phlogosis of the part irritated by the contusions, only slowly and gradually invaded and extended over the remainder of the parenchyma, so that the amount of fluids, the strength, and the necessity of breathing, all diminished in the same proportion as did the extent of the surface by which the act of respiration could be performed. Other causes may have existed to occasion the difference of the duration and degree of oppression, but this appears to me to have been the principal.

The period of incubation, during which the irritation of the lungs existed in that degree only which denotes catarrh, is also to be discerned in this case. An intermittent fever developed during this interval, could, from the reasons before mentioned, only have added to the irritability of the chest.

The chronic phlogosis of the mucous membrane of the bladder must also have favoured the inflammatory diathesis or the irritability of the arterial system. Although this affection does not appear to me to have any direct connexion with the irritation of the chest, it as much deserves our notice as that slow phlogosis of the mucous membrane of the colon, which produces colliquative diarrhœa.

These five cases of phthisis are the shortest, the most rapid in their progress, and the most like peripneumony of any whose progress I have been able to observe carefully and to examine after death. They differ from this disorder, 1st, in the violent phlogosis being for some months preceded by an obscure irritation; this does not happen in genuine pneumonia, which declares itself suddenly, soon after having received the impression of the provoking cause;* 2d, in the inflammatory fever which marked the period of the disorganization of the lung lasting longer than that of pneumonia, not appearing, like it, to have longer and shorter

* And why should that one alone have the privilege of this denomination? Has it not been seen in the previous section, that catarrh often precedes pneumonia? For if it take one month's precedence, it may precede it by several. Besides, whether the inflammation of the parenchyma be quick or slow, it is not the less a pneumonia, and certainly we cannot logically give any other name to what authors have designated by the words *phthisis pulmonalis*. (See *Examination of Medical Doctrines, &c.*)

periods; and in destroying the strength and *embonpoint* much faster, without the pulse losing any of its strength, or the heat any of its intensity.

Therefore, whenever the pulmonary inflammation appears to degenerate from its original character, to assume those we have just described, there will be reason to fear that tubercles have been formed. This change does not readily occur when irritation prevails with some intensity in the sanguine capillaries; but when it exists obscurely in the internal membrane of the bronchiæ, or only in the mucous glands of this membrane, it is more easily communicated to the lymphatic vessels. It was thus that a predisposition took place in the five cases of phthisis just recorded, during their first period, which I have named "*incubation.*" Every prolonged catarrh may then become a cause of phthisis, when the lung is predisposed to tubercles; but these tubercles will not always produce as violent an attack of inflammation as in the preceding cases. The only thing to be observed is a concurrence of symptoms peculiar to tubercles, with those already pointed out in the history of chronic catarrh. There results from this a variety of phthisis which it is so much the more important to study attentively, as it is less clearly marked than the preceding, and the kind of uncertainty that exists at the commencement may occasion the loss of the opportunity of making the impression upon the economy, necessary to divert the irritation from the threatened organ.

CASE XLII.—*Chronic catarrh complicated with tubercles and diarrhœa.*—Bernardin, from twenty-two to twenty-three years of age, medium height, pale ash-coloured complexion, chestnut hair, limbs slender, chest badly developed, form not very regular, contracted a cold at the seige of Ulm, and four months afterwards I received him into the hospital of Udine, in the beginning of March, 1806. I observed at first a continued and moderate febrile excitement, a slight cough without expectoration, and much appetite. Under the use of demulcent pectorals and blisters* this slight erithism, after continuing for twelve or fifteen days, abated. But its disappearance was not fol-

* This was the proper time for the application of leeches; but it was not until I was at Val-de-Grace, that I thought it possible to arrest phthisis by local bleedings applied to the trachea near its bifurcation.

lowed by a return of tranquillity: the patient still continued with slight difficulty of breathing, his face was of a yellow straw colour, puffed up, and he appeared to me in that state of languor which is commonly produced by chronic catarrh. Such was his situation on the 16th of March, 1806; but he did not expire until the 19th of April, and during that time, I observed the following gradations.

The cough continued, particularly during the night, and was always dry. Respiration difficult when walking; he was not much inconvenienced whilst in bed. The legs were œdematous. Pulse contracted and frequent during the day, but rather more developed at night, without the temperature of the skin appearing to be increased, excepting when he had eaten more than a certain quantity. Appetite still continued very great; but, from time to time, he had several returns of diarrhœa, which, as well as the fulness of pulse, corresponded precisely with the quantity of aliment. In proportion as the inferior extremities were infiltrated, all the superior parts and even the face became emaciated: towards the close he was nothing more than a living skeleton, whose legs were slightly œdematous.

To moderate the cough and the diarrhœa, I had recourse to farinaceous food, to the tincture of opium with some distilled waters,* and to the white decoction† with gum Arabic. For what could be done? The patient was not, however, as importunate as many others; provided I satisfied his appetite he did not complain; he was always gay and very indifferent to his fate. Afterwards he appeared to me to be in a state of imbecility, and subsequently to have a continual propensity to sleep, which induced me to think that the brain participated with the interior disorganization. The 19th of April he lost his senses, and finally, after remaining in a comatose state for seven or eight hours, with an imperceptible pulse, skin cold, and respiration interrupted, he died after five months and a half of sickness.

Autopsy.—*Habitude.* Marasmus; slight infiltration. *Head.*

* It is perhaps scarcely necessary to inform the reader that our author here alludes to water distilled upon some plant, and holding in solution a portion of its aromatic and essential oil. To this class belong orange-flower water, mint water, &c.—Trans.

† The white decoction is a demulcent drink, prepared with the crumb of bread, bone calcined till it becomes white and pulverized, syrup of marsh mallow, and orange-flower water. It is sometimes flavoured with cinnamon water. Gum Arabic is sometimes substituted for the bread.—Trans.

Consistence of the brain firm; ventricles dilated by a slightly whitish serosity. *Thorax.* Lungs almost without adhesions, but both filled with miliary tubercles without abscesses: the posterior half of the right only was hepatized without its tubercles. *Heart* sound. *Abdomen.* Small, black, round ulcers in the colon, the membrane around them red and thick; the mesenteric glands developed, none had any tuberculous matter in the centre.

Observations.—It is here seen that an irritation, at first fixed in the mucous membrane and afterwards in the parenchyma, excited or hastened the formation of tubercles, to which, from constitution, Bernardin was liable, and that the lung was as much disorganized by the sanguine inflammation as by the multiplicity of tubercular granules.

The symptoms of the chronic catarrh, are, cough for four months, febrile excitement, which was observed at the time of his arrival, infiltration, and absence of hectic fever.

The tubercles influenced its progress, 1st, by producing a frequency of pulse more continued than in simple catarrh;* 2d, by inducing marasmus, which is to be attributed to a more serious defect in respiration, than is generally produced by catarrh.

The inflammation of the intestinal mucous membrane being languid and partial, it will not occasion any surprise that the diarrhœa was not copious or obstinate. From his feeble, cold constitution, and especially the little development of the sanguine system, Bernardin was sheltered from rapid and painful inflammation.

As to the brain, this is not the first instance in which I have found the ventricles in consumptive patients dilated. It may be observed that it was not an immediate effect of the pangs of death, as most frequently some symptoms had, during the illness, indicated the suffering of that viscus, and that it is in general found healthy when the intellectual functions have preserved their integrity to the last. In general, when patients die comatose, there was previously a predisposition to it of the brain, the feeblenesst of which, or an organic alteration already consummated, had been manifested.

Next to this case I shall place another of almost the same nature.

* The frequency of pulse cannot be augmented by tubercles, they being absolutely inert.

† Substitute irritation.

CASE XLIII.—*Chronic catarrh complicated with tubercles and diarrhœa.*—Lausanne, aged twenty-two, chestnut hair, pretty regularly formed, flesh flabby, skin white and delicate, contracted a cold at the siege of Ulm, which in the course of four months and a half produced several sufficiently defined febrile excitements.

I attended him at first during about twenty days at the hospital of Udine; but the disease was already well advanced, although this soldier had lost but little of his flesh. Demulcents and revulsives soon calmed the febrile excitement, and I perceived at the same time that Lausanne's complexion assumed a straw-coloured hue, and that puffiness which belongs to chronic catarrh. He always reposed on the left side, the infiltration was also much more considerable throughout the whole left half of the body. He said that he was well, except the night cough, and had a very good appetite. His pulse was frequent, without producing heat of skin. I confined my practice to aromatic and etherized mucilaginous juleps and a mild diet, considering him from that time a victim to chronic induration of the lungs.

On the 13th Lausanne became the patient of another physician, in consequence of a division occasioned by the number of sick. I did not cease, however, observing him till the day of his death, which took place on the 2d of April. The cough continued, the inferior parts as well as the face and left arm were infiltrated, while the rest of the body became visibly extenuated. The pulse still remained frequent, but without habitual heat, except during the last three or four days, when a slight febrile excitement took place: then the œdema disappeared, except in the left arm, and, after death, this limb was large and renitent. I observed that he had diarrhœa for nearly a month, but it was moderate and not fatiguing. He did not expectorate or perspire, in short, he only complained of a cough at night, which often deprived him of sleep. His illness, like that of Bernardin, lasted from five and a half to six months.

Autopsy.—*Habitude.* Body, marasmus in the second degree; cellular tissue rather doughy; infiltration considerable only in the left arm. *Head.* Normal. *Thorax.* The right lung adhered to the chest on all sides by compact productions considerably advanced in their organization: it was gorged and hepatized superiorly and posteriorly. It contained many tubercles, two or

three only being large and reduced to white matter in their centre. The others, which were innumerable, were not larger than a small pea, and did not contain any fluid; they were white and full, like so many small conglobate glands. The left lung did not adhere except on its posterior surface; it was indurated in a small portion only of its parenchyma, but every where much engorged and as full of tubercles as the right. There was no ulcerated abscess in either of the parenchyma. The bronchial glands were found uncommonly developed, many of them were as large as a hen's egg. On dividing them, I found in the centre a nucleus of tubercular matter, or of that caseiform fluid which I have said was the pus of the lymphatic fasciculi which have been long scirrhous. The *heart* was sound. *Abdomen.* The mesenteric glands were engorged, and some of them tuberculous in their centre, like those of the bronchiæ. The liver and spleen were tubercular; in the first the tubercles were almost miliary and without matter in the centre; in the spleen, which seemed transformed into a mass of tubercles, several were very large and wholly or partly dissolved. The mucous membrane of the colon generally rather red, but black in some insulated points, contained a number of small round ulcers with a black base and ragged edges, in the centre of which the membrane was destroyed in its whole thickness, the floor of the ulcer being formed by the muscular tunic.

Observations.—All that I have said respecting Bernardin may very well be applied to Lausanne. It, however, appears by the little progress made by the tubercles, that the sanguine phlogosis produced the alteration in the lymphatic system, of which the tubercles are the product.

In the following case the symptoms of catarrh still preserve the predominance, although the degeneration of the lymphatic fasciculi is rather more advanced.

CASE XLIV.—*Chronic tubercular catarrh.*—A young man of weak constitution, aged twenty-one, was amongst the cases of fever upon the opening of the hospital of Udine. I could not obtain all the information which I could have desired respecting the progress of his disease. I only learnt that he had coughed for several months, and that he exhibited certain exterior signs of chronic catarrh, such as straw-coloured complexion, a tendency to puffiness and swelling of the feet. To these symptoms were joined a considerable dyspnœa, with a white thick expectoration analo-

gous to that of a catarrh that has reached the stage which has been called *coction.* The pulse was frequent; the heat of skin and the redness of the cheeks were not remarkable; he was in a state of semi-marasmus. His death, which was preceded by considerable agony, enabled me to see the lungs indurated to about half of their extent and filled with miliary lymphatic granulations, with but few abscesses, and these so small that they would scarcely have contained a pea. All these tubercles were in their first stage, none contained any white matter. It is, however, certain that some of them by their dissolution had given rise to the small abscesses which were observed; but they did not furnish sufficient pus to resorption, to induce violent hectic fever.

In these three cases, the sanguine inflammation and that of the lymphatic fasciculi, concurred to destroy the function of the lungs; but the first appeared to me to have contributed more towards it than the second, which would have differently disorganized them if it had had the predominance for some time.

In fixing a little our attention upon the symptoms which may lead us to presume the existence of this complication, we already distinguish the influence of the tubercular alteration.

In simple chronic catarrh œdema predominates, and the wasting of the muscles is slight: in that complicated with tubercles the œdema also exists, and, nevertheless, all the organs become in a state of atrophy. Is it hazarding too much to advance that tubercles when very numerous more materially change the organization of the lungs, than the progress of the induration, which cannot become very extensive until the approach of death?* But the deterioration of the pulmonary tissue carries with it, by necessity, not only the absence of nutrition, but also the decomposition of the blood and of the solids of which this fluid is the food. Catarrh complicated with tubercles will then occasion marasmus by its duration, even when constantly unattended with fever. Thus the prolongation of a slight chronic catarrh, with

* Sanguine induration changes the lungs sooner, because it renders them impermeable, and because it sometimes resolves them into a purulent pulp, which constitutes an abscess; but it belongs to acute pneumonia: as to the chronic, the tubercles produce in the lungs deterioration by softening, and by the ulceration which follows; but the more induration is added to it, the more the disorganization is accelerated, so that in the last analysis, the destruction is always in direct proportion to the phlegmasia, a necessary cause of the sanguine induration or hepatization.

emaciation, is sufficient to warrant the presumption of the existence of tubercles.

But the state of the circulation can furnish information not less important to the diagnosis of this variety of phthisis, one of the most likely to be mistaken. In fact, the catarrh appears first, it is continued without fever, and becomes chronic. If a moderate heat, with frequency of pulse and redness of the cheeks then come on, every one recognises phthisis; but if the frequency of pulse be unaccompanied by heat of skin, if the cheeks are not coloured at night, if the palms of the hands do not become heated, neither hectic fever nor phthisis are acknowledged, since the occurrence of this fever is generally waited for before deciding* on the presence of phthisis.

The frequency of pulse is, however, very often the effect of an irritation of the parenchyma, occasioned by the presence of tubercles.† This kind of hectic is feeble and without heat, when the sanguine apparatus is deprived of energy, and the tubercles have not yet suppurated: that is to say, it is the *hectic of pain.* To have a right to consider it as the sign of tubercles, it must not be attributable to any other irritating cause, and at first it ought to be compared with the hectic of uncomplicated chronic catarrh.

The quickness of the pulse in catarrh, is in most cases sensible in the evening only, and after taking too much food. That which depends upon tubercles also increases under the same circumstances: but as soon as they have acquired a certain size, the frequency of the pulse is constant, and as soon as this has declared itself the muscles become quickly extenuated, as has been seen in the two cases last described.†

As chronic pleurisy as well as tubercles maintains the frequency of pulse, and by a mechanism very nearly analogous, we ought to be well assured of the absence of the symptoms which are peculiar to this phlegmasia. We ought afterwards to

* In these cases tubercles may exist a long time without producing much derangement, because they have nothing acrimonious or deleterious until inflammation has converted them into pus; then the external air putrefies the pus, which becomes to the organ a perpetual cause of irritation and phlogosis. It is then still inflammation which consummates the disaster which it has prepared.

† See the preceding note.

examine if the disease of a viscus not belonging to the cavity of the thorax be not the source of the arterial excitement. When neither of these causes exist, it is as certain as it can be, that the patient who has coughed for a long time, who has an agitated pulse, who loses his strength, his flesh, and his shape, although he does not experience constant dyspnœa or severe heat, is consumed with a latent phthisis maintained by dry tubercles.

But as one chronic irritation often brings on another, tubercular catarrhs will rarely appear in this simple form. It may then be advantageous here to examine one whose quiet progress was suddenly interrupted by a disorganizing phlogosis of the colon.

CASE XLV.—*Chronic catarrh complicated with tubercles and excessive diarrhœa.*—Carlet, from twenty-three to twenty-four years of age—flaxen hair—skin white—complexion pale, ash-coloured—form slender, rounded, and regular—chest proportionably large—flesh flabby—had contracted a catarrh in traversing Germany, for which I had before treated him at Laybach. This catarrh had been febrile during the first days that the patient passed in that hospital; it became afterwards a simple cough, with a pulse hardly to be called feverish. Carlet rejoined his corps, but returned to Udine near the middle of March, three months and a half after the first attack. He had then a very fatiguing cough at night, frequency of pulse without heat of skin, great diminution of his ordinary *embonpoint*, straw-coloured skin, with puffiness of the face and legs, and a diarrhœa, at first moderate, but which became after eight or ten days so considerable, that the patient, obliged to be constantly up, no longer enjoyed any rest at night.

Mucilages—rice—light food—antispasmodics, opium among others, which the cough and the evacuations required frequently, had no effect.

Carlet had no pain in the abdomen; he was only harassed by the loss of sleep. He soon even forgot that he had a cough. He constantly recalled my attention to the diarrhœa, which alarmed him, persuaded that if I could arrest it, I should save his life. This evacuation, however, had not yet exhausted him, as he assisted himself and promenaded the length of the entries.

For about eight days the pulse increased, and respiration attracted notice by a particular elevation of the chest, which was not

painful to the patient. On the night between the 30th and 31st of March, after having walked according to custom, and after some moans, and rattles of short duration, he was found dead in his bed. He expired on the fifteenth day of his entrance, and at the end of the fourth month of his disease.

Autopsy.—*Habitude.* Body thin, but still far from complete marasmus; cellular tissue slightly loaded with lymph, the muscles rather discoloured. *Head.* In good condition. *Thorax.* The lungs tubercular, the right adhering throughout its whole circumference by well-organized productions, containing some small abscesses hollowed in the red substance, which was indurated and hepatized in a great portion of the lobe. The tubercles were few in number, and uniformly spread over the whole extent of the parenchyma; none of these were hollowed in their centre or dissolved into white matter, but this matter was found on the surface of the small ulcers. A small proportion only of the left lobe toward its upper and posterior portion was hardened; the remainder was much engorged. Bronchial glands large, with nuclei of tubercular matter. *Heart* sound. Two tubercular glands on the diaphragmatic pleura. *Abdomen.* The liver and spleen presented on their surface a great many small, full tubercles. The mesenteric glands formed a mass of the size of the two fists of an adult; they were swollen, hardened, and almost all enclosing a nucleus, the greater number white, and reduced to a pulpy inodorous fluid. Peritoneum sound; but it contained much pale yellow-coloured serum. Mucous membrane of the colon thickened and presenting a number of small circular ulcers, with red and ragged borders, in the centre of which the membrane was destroyed; everywhere else this membrane was sound.*

Observations.—Carlet having a lymphatic visceral apparatus, predisposed to engorgement, contracted a catarrh. The derangement introduced into the functions by this phlogosis, developed the tubercles of the lungs, and this double lesion was the cause of the symptoms, until the progress of the mesenteric phthisis, and the

* When there are mesenteric tubercles, there is always phlegmasia in the mucous membrane of the small intestines, at least near the termination of the ileum.

multiplied ulcers of the colon,* caused additional pain, and greatly impaired nutrition.

The extent of the induration, and the small number of tubercles, induce the belief that the sanguine phlogosis had long been the predominant affection, and that the tubercles were the result of it and not the cause. In fact, when tubercles make their first appearance in affections of the chest, (which is always marked by the frequency of pulse and by a rather greater than ordinary heat, that is, provided the subject is in the full enjoyment of strength and susceptibility,)† the disease does not become fatal until after a much greater multiplication of the tubercles than were observed in Carlet. It may then be presumed that the catarrhal inflammation was of itself intense and dangerous in this patient.

At the same time that the tubercles became larger in the centre of the pulmonary parenchyma, and that others were forming in the mesentery, a fresh cause of exhaustion was added by the lesion in the colon and by the consequent impairment of nutrition. The phthisis could not then go through its regular stages; thus the tubercles remained nearly stationary, and the patient fell into a state of marasmus almost without fever, and his life was terminated suddenly by exhaustion before complete extenuation.

But to revert to the frequency of pulse as a sign of the existence of tubercles. Towards the last, the inflammation and ulceration of the cryptæ of the intestinal mucous membrane, must undoubtedly have influenced the heart as much as the pain caused by the tubercles of the lungs, and diminished still more the power of nutrition. But it must be recollected, also, that the frequency of pulse existed before the diarrhœa; that, notwithstanding the quantity of substance lost by this evacuation, Carlet never complained of pain in the region of the abdomen, nor of tenesmus. The frequency of pulse, according to my opinion, existed at first as an effect of tubercles alone; and the inflammatory colic only added to the principal disease symptoms

* Ulcers should be mentioned before mesenteric tubercles, because it is the phlegmasia of the mucous membrane which determines the swelling of the lymphatic ganglions.

† I here swear *in verba magistri*.

which we shall study in a particular manner in the second part of this work.*

It may also be asked, what influence the abscesses found in Carlet's lungs could have upon the frequency of the pulse. No one can doubt their having powerfully contributed towards the last, but they were recent. I cannot determine their age with precision, but I am convinced that all abscesses make rapid progress in the lungs as soon as the air can penetrate into them, because the violence of the hectic fever is always in proportion to the extent of the ulcers. As soon as heat is added to the frequency of pulse, and these symptoms continue in a patient whose chest has long suffered, ulcers may be supposed to exist, this being always evinced upon opening the body; whilst in those persons who had experienced only a hectic from slight pain, either none are found, or if there be, they are but few in number and very small. The reason of this is, that the influence of the air on the lungs is the same as on all the other organs in a state of suppuration: pus does not become the cause of violent hectic fever until the mixture of this powerful agent of decomposition has rendered it putrid. The history of pleurisy has already furnished a positive proof of this fact.

It is then certain that if in Carlet's case, the existence of ulcers could only be dated from the time he entered the hospital, the hectic heat would have begun from that moment, and upon the opening of the body the ulcers would have been found larger. It is much more probable that ulceration was not completed, or at least that the air did not penetrate into the ulcers, until almost the close of life, and that the smallness of the cells, the exhaustion, and premature death of the individual alone preserved him from the accidents which necessarily accompany the hectic from resorption.

On meditating upon the cases of catarrh followed by phthisis which I have just related, it appeared to me that the following propositions might be admitted as axioms in medicine, without prejudicing the facts observed or to be observed, which will demonstrate other truths respecting the same subject.

1st. Sanguine inflammation of the lungs, either peripneumonic

* I now reject all these explanations, and I attribute to the double gastro-pulmonary mucous phlegmasia what I then attributed to tubercles

or catarrhal, can, when prolonged by the continued action of the causes which produced it, make an impression upon the lymphatic fasciculi of the viscus, causing them to degenerate into tubercles, or furnish depots of tubercular matter.

2d. When tubercles are multiplied in a short space of time, in a lung possessing great excitability and energetic sanguine capillaries, they can give rise to as decided inflammatory symptoms as those of pneumonia, but of longer duration, which are excited by the suffering of the organ and constitute a violent *hectic from pain.** Death often takes place before the degenerated lymphatics have had time to pass to a state of purulent colliquation; but it can be retarded and permit the destruction of the parenchyma and general extenuation, with a *hectic of resorption.*

3d. If the parenchyma in which the tubercles develope themselves be sanguineous and excitable only in a small degree, if the patient be already exhausted and of a relaxed and apathetic constitution, the presence of these foreign bodies is not shown except by the more constant frequency of pulse than before, (slight hectic from pain, scarcely warming the skin,) by a more frequent cough, and by loss of flesh, which appears in contradiction with the mildness of the other symptoms. This simultaneous alteration of the red and white fasciculi of the organs of respiration can also suspend its functions and terminate life before the period of suppuration and ulceration of the tubercles.

4th. In men with light and chestnut-coloured hair, graceful person, soft flesh, the chest but little developed, and those who have had the lymphatic apparatus weakened† by a venereal, psoric, or herpetic disease and by the medicaments which act on the glandular system, peripneumony or catarrh are most liable to degenerate into tubercular phthisis.

* In such cases a chronic catarrh has produced tubercles: after which inflammation suddenly radiates from the bronchial mucous membrane, where it was circumscribed throughout the whole parenchyma, occasioned by some new exciting cause, such as cold, sudden heat, anger, an active gastric irritation, &c. and the disorganization takes place with extreme rapidity. This is the true progress of these kind of phthises.

† Rendered more irritable.

CHAPTER II.

Tubercular Phthisis dependant on Chronic Pleurisy.

We have just seen sanguine inflammations of the parenchyma induce the development of tubercles, and thus degenerate into phthisis. It has already been proved to us, that inflammation of the pleura may have the same result, but in most of the examples we have found of this complication, in treating pleurisy properly so called, the tubercles developed themselves too late to allow the phthisis to be complete. A true picture of this disease has not been presented, except in the case of Pion, (Case 29,) and towards the end of the three pleurisies with perforation of the pulmonary parenchyma. The pleurisies which we propose to collect in this chapter, have produced phthises much more tubercular and better delineated, which have eclipsed the primary symptoms of the disorder a sufficient length of time to cause it to be entirely lost sight of.

We shall begin by those in which the symptoms of sanguine inflammation have been longer predominant, as being the intermediate grade between simple pleurisy and that complicated with tubercles of the parenchyma: we shall conclude with those pleurisies which have the soonest excited the degeneration of the lymphatic fasciculi of the different tissues which concur in the respiratory function.

CASE XLVI.—*Pulmonary phthisis with suppurated tubercles of the parenchyma following a chronic pleurisy.*—Phalire, aged about thirty-two, an artillery-man, dark complexion and hair, tall, well-made, having a broad chest and large muscles, was thrown down whilst manœuvring a gun, five years previous to his entering the hospital of Udine, and fell in such a way that one of the wheels of the limber of the gun passed over his chest. After some time he was cured of the principal symptoms: but his chest continued feeble, and every spring and autumn he had more cough and difficulty of breathing than in the other seasons.

Being in Holland in an. XIII. he had an intermittent fever,

which was followed by an excessive infiltration. He was cured of this; but his chest, which had greatly suffered in this illness, was left feebler than before. He became subject to hæmoptysis, the frequent return of which harassed him greatly.

During the campaign of Germany in the beginning of an. XIV.* he was almost constantly afflicted with severe cold. Afterwards, copious hæmoptysis having returned when the warm weather set in, he entered the hospital early in May, 1806.

Finding the pulse frequent, full, and hard, I from the very first had recourse to bleeding, leeches, and demulcents, and ordered a very strict vegetable diet. The hæmoptysis ceased, the sputa became white, opaque, and globular. The frequency of pulse and heat of skin did not abate; strength and appetite very little altered. I introduced a seton between the scapulæ.—Amelioration; the heat became natural, pain and dyspnœa ceased, and the patient had hopes of recovery. But the quickness of pulse, constantly opaque sputa, and a peculiar change of countenance, prevented my participating in this hope. At the end of upwards of twenty days, and two or three after the seton was removed, which was done at the earnest request of the patient, he had a sudden increase of cough and very aggravated dyspnœa, and ejected his food; his cheeks became hollow, his strength failed, and he became very hoarse. Antispasmodics had no effect: I applied a blister over the left false ribs, because he complained of pain and oppression most in that part. The next day he was quiet, the heat had abated, the patient felt as he did before the attack, except that the weakness was much greater.

This intermission was but of short duration. The next day, 9th of June, his pulse was hard and frequent, with heat of skin: the dyspnœa was not so great as to discourage the patient. Soon the hoarseness increased, he had a sensation of weakness in the præcordial region, and slight infiltration of the legs. Some days after, nausea, and a sensation of something rising in the throat. On the 15th the pulse became softer and more relaxed, the skin cool, the diarrhœa and the infiltration remained stationary. Quickness of pulse and emaciation of the superior parts continued, his mind wandered, he said that he was well. On the 21st he had lively delirium, but he could not breathe, except in a sitting pos-

* Before the first of January, 1806.

ture. The 22d pulse softer and less quick, the dyspnœa increased, muttering delirium during the night. 25th. Return of the stitch in the side, frequency of pulse and heat of skin, prostration; died after a short agony. It will be easily imagined that I could use such medicines only as suited the symptoms, which for some time past had for their object to assuage merely his sufferings, and soften the bitterness of death.

Autopsy.—*Habitude.* Body, very great marasmus, extremities slightly œdematous. *Thorax.* The right lobe free, indurated in its superior half; a multitude of granular points, several of which had a tubercular appearance, and the others, resembling small scirrhous glands, were to be seen in the parenchyma: in the inferior part, where induration did not exist, they were more visible. The superior part presented a certain number of very small abscesses. The left lobe was in a state of atrophy, pushed upwards under the clavicle by an accumulation of a whitish and extremely glutinous fluid. The pleura which circumscribed it was red, and coated with a layer of exudation or cheese-like pus. The substance of this lobe much more indurated than that of the opposite side, filled with white granulations, and enclosing a great number of abscesses, the coats of which presented the same appearance as the ruptured parenchyma. The white granules, when crushed, were reduced into tuberculous matter, but none of them had a tubercle forming their nucleus. The abdominal organs did not appear injured in their organization. The trachea was not examined.

Observations.—This disease resembles the chronic pleurisies which we collected in the preceding chapter, that is, the patient had a predisposition to tubercular phthisis, which remained inactive for a length of time; owing, no doubt, to the vigour of his constitution, and to the particular energy of the lymphatic vessels. I judge as follows of the progress of this variety of pulmonary consumption.

The pains in the chest, the hæmoptysis, the difficulty of breathing, which, during five years, reckoning from the period of the accident, rendered the patient's health wavering without his becoming thin, only announced the suffering of the pleura of the left side, and the compression of the lung in consequence of the pus ejected into this cavity. Chronic pleurisy was then the first effect of the pressure by the limber wheel. We know that con-

tusions of the thorax produces chronic pleurisy more frequently than any other disease. The pulse should have been hard at intervals only when influenced by excitants: it should fall during repose, and by diet, as we have observed in all simple pleurisies: it is the period of the *hectic from pain.*

But the parenchyma became at last tubercular, and from that time hardness of the pulse, its frequency, in a word, hectic fever, although still without heat, became continued; at this he entered the hospital, because as soon as the frequency of pulse became continued, the patient could no longer perform his military duties. At last the developed tubercles suppurated, and after this last change the progress of emaciation became incomparably greater and deterioration of all the organs, owing to the poisonous impression of the resorbed pus. Death took place before the lymphatic disorganization was sufficiently advanced to enable us to discover, upon opening the body, any visible traces, except in the lungs.

In the subject of the following case, the causes of tubercular phthisis acted less slowly, notwithstanding the patient's good constitution; but we find sufficient reasons for this in the distressing circumstances to which he was exposed.

CASE XLVII.—*Tubercular pulmonary phthisis, with ulceration of the parenchyma, produced by a chronic pleurisy following an adynamic fever.*—Bonny, aged forty, brown complexion and hair, athletic form, never having been ill; when at Bruck in Styria, in the month of Nivose, an. XIV. and January, 1806, had an attack of adynamic fever, complicated with very severe affection of the chest, for which I prescribed, but not without much anxiety. The disease was still in its full vigour when he was removed to Gratz, and from thence to Laybach. The putrid fever terminated during his route, in the midst of the frozen mountains of Styria, and Bonny arrived convalescent at the hospital of Laybach. After his arrival, the affection of the chest appeared to be so much exasperated that it had almost the intensity of a recent peripneumony.* The oppression of the

* It is here seen that cold cured the gastro-enteritis and exasperated the pectoral phlegmasia: may this not be because the gastro-mucous membrane is modified in the same way as the skin, that is to say, refreshed, whilst the pulmo-

chest was so great, that for several days the patient appeared at the last gasp. He recovered, however, to a certain extent, through the care of Dr. Corafa, and returned to his corps, where he remained about a month in a vacillating state of health. But the inconvenience from the cough, to which fever was soon added, obliged him at last to enter the hospital of Udine on the 13th of March, 1806, when he was placed under my care.

He then complained of an obstinate cough, very harassing during the night, with a mucous, slightly opaque, and inodorous expectoration. His pulse was strong and quick, skin hot, face pale, shining, and rather puffy: he complained of obtuse pain in the right thoracic parietes, which was also painful upon percussion and the sound dull.

Demulcents, aided by repose and a vegetable diet, promptly diminished the frequency and hardness of the pulse, and reduced the heat to the natural state of health. As exutories had been several times repeated, I thought it useless to again have recourse to them. I endeavoured to encourage the resolution of the chronic catarrh by the use of squills and kermes mineral. This has succeeded sometimes, when the catarrh was simple: but in this case the symptoms of a collection in the pleura left me but little hope.

From the 15th to the 26th of March, I only observed cough, with a slightly-marked frequency of pulse, no heat of skin, complexion straw-coloured, and a slight tendency to œdema: his appetite was good, confidence and hope had revived the patient; he thought that he would soon be quite well; he almost recovered his usual *embonpoint*.

On the 27th I observed that his pulse and heat increased towards night.—Diminution of food, pills of opium and ipecacuanha in equal parts, a plan which has often succeeded with my colleague Corafa in chronic catarrhs. Frequency of pulse and heat, more remarkable during the day than had hitherto been the case. In the evening, during the exacerbation, the cheeks became of a deep red.—Diet more restricted. Diminution of the reäction: it came on again two days after.

From the 1st to the 21st of April, the hectic increased, conti-

nary mucous membrane which should supply the functions of the exterior envelope, experiences with the kidneys an opposite modification, that is, is excited, so that its increased exhalation replaces that of the skin, which had just been suppressed?

nual heat, the œdema disappeared in the superior parts, rapid emaciation, fetid excretions, cough almost constant, fetid expectorations, diarrhœa.

Twenty-second, pulse feeble, heat less than natural, dyspnœa and insupportable anxiety, alteration of features: he constantly reposed on the left side, the right being painful when laid upon or from pressure. On the 23d he felt well, and thought himself stronger. The 25th he died in a comatose state. Total duration of illness, reckoning from the first period of putrid fever, about five months.

Autopsy.—*Habitude.* Body, very great marasmus, tissues slightly charged with serum, muscles discoloured. *Head.* Neither well-defined engorgement nor sanguineous injection; little serosity in the ventricles, much in the inferior fossæ. It was everywhere limpid. *Thorax.* The lobes of the lungs indurated almost throughout their extent, and everywhere tubercular. Several tubercles in *deliquium*, and hollowed in their centre, had totally disappeared. The right lobe pressed and attached under the clavicle, of the size of the fist, was harder than the other, and its tubercles so multiplied that it appeared as though it were entirely lardaceous: it had one or two rather large abscesses as if formed by the union of several tubercular cavities. The cavity of the pleura coated with an exudation, filled with a sero-sanguineous and flocculent fluid: the pleura red. *Heart.* In natural condition. *Abdomen.* The mesenteric glands tumefied, somewhat disorganized, but without tubercular matter. The peritoneum sound; the colon prodigiously distended with air; some redness and slight traces of inflammation in the mucous membrane.* The spleen small, contracted, tubercular; the liver rather contracted than expanded, and presenting some small white points under its serous membrane, which, as well as those of the spleen, appeared to be masses of cheese-like, tubercular, inodorous matter.

Bonny's illness lasted five months, during which the symptoms of catarrh had been renewed, first, by the cold, during a long and painful retreat, when he was scarcely convalescent, afterwards during his marches with his regiment. Are not these relapses to be accounted for in the same way as those we met with in simple

* There must also have been traces of inflammation in the mucous membrane of the small intestines, as the liver and mesentery were tubercular.

pleurisy? Are they then any thing but attacks of sanguine inflammation of the parenchyma, induced by its compression by the diffused fluid; a compression which it felt more severely when it was swollen by exercise and too heating a diet?

The hardness and frequency of pulse was in proportion to the embarrassment and pain of the irritated viscus. With repose and proper diet it abated; at the same time the cough, dyspnœa, and mucous expectoration seemed to disappear, and the patient encouraged hope. But as soon as the tubercles were in a state of suppuration, (from about the 25th or 26th of March,) he never enjoyed one moment's rest; the frequency of pulse became constant; and the fetor of the excretions and wasting of the body, which until then had been stationary, advanced with rapid strides. The true *hectic from suppuration*, therefore, lasted only one month.

Although Bonny had completed his fortieth year, and at that age a soldier is nearly worn out,* it appeared to me certain, considering his excellent constitution, that he would have opposed a longer resistance to the development of tubercles, if the vital power had not been exhausted by the putrid fever and by the extreme cold to which he was exposed during his route.

The following case of phthisis, also induced by pleurisy, was much more rapid, notwithstanding the strength of the subject; but it must be observed that he was an African.

CASE XLVIII.—*Suppurated tubercular phthisis and general tubercular diathesis, following chronic pleurisy and pericarditis.*—Adrian, a negro, aged about thirty, muscular, broad chest, stout made, contracted a pain in his side with cough, during the campaign of the army in Italy, under the command of General Masséna, in an. XIV. I found him in the hospital of Udine, when I was appointed to take charge of it, in March, 1806. He was one month under my care, during all which time he had very high, continued fever; pulse hard and full; cough,

* It must be understood, in time of war, in the midst of painful marches, and particularly in the infantry. The cause of this premature exhaustion is twofold: excessive fatigue, and an insufficiency of food. It must also be confessed that many appear worn out only because they are affected with chronic phlegmasia. This latter cause is much more common than was believed previous to the period of our doctrine.

threatening suffocation, especially in the night, and even during the day, so as to oblige him to be almost always up, which made him look gloomy and morose. He did not complain of any fixed pain; but the sound was dull on the left side, the seat of his previous suffering. He did not waste away rapidly, except during ten or twelve days of burning heat and of fetidness of the excretions, which preceded seven or eight days of apyrexia.

During the latter period, he had only frequency of pulse without heat, but still the fetor and slight diarrhœa. During the same interval, the suffocation was greatly diminished, and œdema supervened: his appetite, which had always been good, underwent very little change. Debility alone foretold his death, which took place suddenly in the middle of the night, during a paroxysm of suffocation.

Autopsy.—*Habitude.* Body regularly formed, muscles still large and defined, cellular tissue infiltrated and remarkably white. *Head.* Cranium very thick, cerebral mass of inconsiderable size, brain and its membranes in good condition. *Thorax.* Right lobe free, indurated in its superior third, which was so filled with tubercles, that the greater part of its mass consisted of them. Some were suppurated and dissolved; all those in the crepitating portion were full and perfect. Left lobe adhered throughout its whole circumference, by red, well-organized, and very long, solid productions, whilst the parenchyma was confined under the clavicle. The space between these bands was filled by a serous, bloody fluid of the colour of the lees of wine, containing red clots and the remains of a cheese-like and inodorous exudation. The pleura, which circumscribed the cavity, both on the lungs, the mediastinum, or ribs, was red and very much thickened. The small remains of parenchyma were greatly indurated and strewed with dry tubercles. *Heart.* White serosity in the pericardium; exudation over the whole surface of the serous membrane. *Abdomen.* Liver and spleen of natural colour and consistency, but strewed with tolerably-sized and full tubercles. Upon close examination, they were found to consist more of a thick cheese-like matter, than a scirrhous substance, as were also the mesenteric glands, none of which had similar matter in their centre. The mucous membrane was in general thickened, and rather red in the whole length of the digestive canal: the redness more marked in the colon.

Observations.—Although we are not informed of the causes which in the first instance gave rise to the phthisis of negro Adrian, we know that it commenced by a sharp pain in the side, which sufficiently informs us that it was the effects of pleurisy, and consequently accidental. I also think that the pericarditis was determined at the same time as the pleurisy, and by the same aberration of organic actions: the peculiar restlessness of the patient, and the moroseness which was the consequence of it, indicated that the respiratory portion of the parenchyma was diminishing very rapidly. We can account for the mechanism of this diminution in the accumulation of fluid, and in the simultaneous increase of a great number of tubercles. But had not the pericarditis a great share in the restless agitation of Adrian? Did it not, above all, contribute as much as the obliteration of the air cells, to that apyrexia of eight days duration which preceded the death of this patient? Satisfied with having called the attention to these questions, I willingly adjourn the discussion.

We may well wonder how tubercles could have become so numerous in so short a time. The strength of the patient did not then oppose their development. Whether tall or short, fat or lean, young or old, all negroes brought to Europe, have a well-established tendency to affections of the lymphatic system. I have seen many persons die of phthisis, but no bodies have appeared to me so tubercular as the men of that race. As soon as a negro has coughed for some time, he is lost. It is necessary then to place the general constitution of these individuals among the original predispositions to tubercular phthisis, at least in European climates.*

* The skin of negroes is not sufficiently stimulated by the sun of our climates to fulfil well its exhaling and depurating functions; hence the necessity of an excited supplementary vital action in the kidneys, and in the pulmonary apparatus; hence, also, by the aberration of this supplementary action, arises phlegmasiæ in the viscera, and irritations in all the cellular, serous, synovial, and glandular tissues, in short, in all the vessels which act upon the lymphatic parts of our humours. Is it therefore surprising, that this increase of action should produce sub-inflammation and tubercular degeneration? To compensate for this, their skins are better enabled to bear tropical heat than ours. This constitutional disposition in negroes, is also possessed by all the animals peculiar to hot climates. The greater number of those shut up in our menageries die, either of chronic phlegmasiæ, or the red induration is always thickly interspersed with very numerous tubercles.

As this variety of the human race have frequently an obtuse sensibility, it is important to frequently repeat our questions, if we wish to obtain an acknowledgment of their sufferings, to which they seldom pay attention, or which they always imperfectly explain. If the nocturnal suffocation, and the full sound of the left cavity, had not recalled to my memory the most part of the cases already cited, I should not have had the slightest suspicion of chronic pleurisy in Adrian; for he never entered into a detail of his sufferings.

More predisposed than the preceding patients to contract tubercular phthisis, Adrian resisted a much shorter time than they did, the influence of a cause which very readily produces it: but he did not pass through the different degrees of marasmus. Those very rapid formations of purulent collections and tubercles, which made him experience such distressing pain, gives us a perfect explanation of this. He was in a manner suffocated by this double cause, before ulcers and the hectic which accompanies them, had time to decompose the tissues and lead to complete emaciation. Thus the absence of marasmus, which seemed to exclude Adrian from the catalogue of the phthisical, is rather an effect of the extreme tendency which he had to this disease. The patient of whom we shall now speak will exhibit a phthisis developed under the influence of the same causes, and to which, notwithstanding, no physician of whatever school he may be, would have refused the name of legitimate and genuine phthisis.

CASE XLIX.—*Tubercular phthisis with suppuration of the parenchyma, ulceration of the larynx and diarrhœa, occasioned by chronic pleurisy.*—John Noël André, native of Nantes, a soldier of the eighty-fourth regiment of the line, twenty-seven years of age, born of healthy parents, and had enjoyed good health during his early youth. Having become a soldier, he contracted in Holland an intermittent fever, of which he recovered. He then enjoyed very good health until the month of Vendémiaire, an. XIV. the period when the Gallo-Batavian army passed the Rhine, to unite itself with the grand army. During the advance, André being in a perspiration, after a fatiguing day's march, drank something cold and immediately remained at rest. The perspiration was instantly suppressed: spitting of blood and acute pain in the superior portion of the

chest, immediately followed. No remedies were given. He followed the army and continued on duty.

At the siege of Ulm, which occurred about a month afterwards, a cough and mucous expectoration replaced the spitting of blood, which until then had reäppeared from time to time. From this period until the 10th of July, 1806, he did not quit his corps or discontinue duty: at last, fever declaring itself, or rather acquiring a degree of intensity which destroyed his muscular force, André was compelled to seek relief in the hospital of Udine, seven months after the accident which had provoked the development of his disease.

I saw a young man, a little above the medium height, with light hair, blue eyes, white skin, frame sufficiently developed, regularly made, more rounded than bony or athletic. He appeared, however, to have been slightly corpulent: but he was beginning to lose his flesh: his complexion was of a pale ash-colour: he complained of cough and of difficulty in breathing: his expectoration was white and opaque, but not yet *diffluent*. The pulse was frequent, hard and quick, and the skin hot, particularly at night: he still retained an excellent appetite.

I judged him phthisical, and having no signs by which I could be assured that the disorganization of the lungs was consummated, I thought I ought to try the effect of a cautery: I had it applied below the left breast, where he complained of constant pain. The patient immediately found himself relieved and the cough diminished. This amendment lasted eight or ten days; but the frequency of pulse and heat of skin, experienced only a slight diminution. However, his appetite greatly increased, and it was necessary to increase his nourishment: but the intensity of the hectic fever always increased in proportion to the quantity of food. At last, an accession of pain obliged me to again confine the patient to soup and gruel.

These alternations of better and worse, took place during forty days, in which time André grew thin and altered: his expectoration had become abundant, white, fetid, and diffluent; the perspiration and breath fetid, and the voice was sensibly altered.

Towards the 20th of August, the febrile heat diminished a little: the patient said he was much better, although the frequency of pulse was the same: the deterioration of all the organs, explained fully the reason of this perfidious amendment.

The 24th he scarcely at all suffered; hope revived; the pulse seemed to reässume a state of health. This seeming repose of expiring nature, lasted but a short time; the palpitation of the heart recommenced on the next day, but the arterial system was no longer sufficiently rich in materials, to submit to the vital chemistry,* necessary to reänimate the febrile heat. Appetite still very good; immediately after satisfying it, pain in the abdomen, and diarrhœa, which became constant. The progress of the hoarseness, the state of suffering and anguish, the frequency of the stools and the tenesmus, deprived him of repose; he became weaker and weaker. Large doses of cordials and opiates were required, which calmed a little the intestinal irritation, and rendered the evacuations less frequent.

The 31st of August, skin cold, pulse almost insensible, cold sweats, voice very low, slight rhonchus, features changed: he said he was well. Life seemed ready to abandon him: it did not, however, cease until the 9th of September. During all this time he was tormented by the frequency of his stools, by the dyspnœa at night, and by a pretty violent pain in the throat. The pulse was still small and frequent: but the skin did not regain its warmth. His death was preceded by a slow and painful agony, during which, he retained for a long time his senses, without being able to express himself otherwise than by signs.

Autopsy.—*Habitude.* Body extremely emaciated: a little lymph in the adipose tissue; muscles pale. *Head* natural. *Thorax* on the right side, between the pleuræ costalis and pulmonalis, were two collections of fluid, separated from each other by an adhesion of these two membranes. These cavities might have each contained a pint of white, thick, inodorous pus, or smelling like insipid and acidulated mucus: they did not communicate with each other; the pleura which circumscribed them was coated with a cheese-like exudation. A depot of the same nature was precipitated in the fluid collection. The membrane was red and thick; but no tubercular matter was seen in its texture. Both parenchymata presented a red, indurated substance, filled with tubercles, precisely the same as those described in the

* It may be observed that this is not the first time that I have made use of this expression, which cannot be replaced by any other. It may be traced, I believe, to Fourcroy and to Cabanis.

autopsy of Girard, (Case 41.) There were no other purulent cavities, except those which resulted from their destruction. Redness of the mucous membrane of the larynx, which was ulcerated only in that small cavity, called the *ventricle of the larynx.* This membrane was visibly injected and thickened the whole length of the trachea and bronchiæ, as far as their subdivision. In very many parts near their bifurcation, there were seen small white miliary tubercles and red ulcerated points. The bronchial glands were tumefied and scirrhous, a few of which had a nucleus of tubercular matter. *Heart* natural. *Abdomen.* The serous membrane was in good condition. The mucous membrane of the colon, was, in its whole extent, red, black, sphacelated, presenting round or angular ulcers, with ragged edges, the central depression of which resulted from the destruction of the membrane throughout its thickness.

Observations.—The exquisite sensibility of this patient, repays us for the stupidity of the preceding, by showing us the most exact relation between the symptoms and the organic alterations.

André lost his voice by a successive progress of pain in the laryngeal region, with hoarseness: the autopsy explained this phenomenon, by showing a laryngeal and tracheal catarrh, with ulceration.*

André was tormented by a violent dysentery: the traces of which could be seen in the ulceration and destruction of a portion of the mucous membrane of the large intestines. We find in all the works, what is called *colliquative diarrhœa,* is placed among the symptoms of chronic diseases, and particularly of pulmonary consumption. Nothing is more likely to give to young people and to practitioners who cannot procure the advantage of dissections, a false idea of the physiology of diseases. As to myself, I here declare that I have never observed either in an acute or chronic affection, a diarrhœa of which I could not find the explanation in the mucous inflammation of the colon: how many phthisical patients perish without having suffered from this accident!

Ulceration of the trachea ought to be considered in the same

* We here see the tubercular productions originating in the middle of the inflamed tissues.

manner. It is one chronic inflammation which has become complicated with another.

What is the cause of these combinations? We must not be too hasty to touch upon this question. Let us be contented for the present with the remark I have previously made: *When an organ is suffering from chronic inflammation, and especially when its disorganization has taken place, all the others are in such a condition that they become inflamed and even ruptured, from the slightest irritating cause.* It must not then be supposed, that the boils, the small depots which occur during the long continuance of the inflammatory disorganization of a central viscus, should be salutary crises and actions. I have often seen hope revive in the assistants on the appearance of these local phlegmasiæ: but I have never known them to produce any other effect than an increase of suffering and distress to the patient.

It will perhaps create surprise, that the disorganization of the mucous membrane of the trachea and of the colon, only began when the pain and evacuations announced it to the patient; which, as regards the diarrhœa, took place but a fortnight before his death. To this I reply as I have done elsewhere, that the attention of the patient's mind being engrossed by more severe suffering, did not pay much attention to this minor evil until it became more serious. I shall also point out, that inflammations lead very rapidly to disorganization in those persons who in addition to great exhaustion of the forces, possess great susceptibility. The facts proving these truths, shall be given hereafter.

André was constitutionally more inclined to tubercles than either Phalire or Bonny, (Cases 46 and 47:) the suppuration also lasted longer and was sooner provoked by pleurisy. The next case will show another grade, approaching still nearer to spontaneous phthisis, although the disorder was evidently accidental.

CASE L.—*Suppurated tubercular phthisis, very rapidly developed after pleurisy.*—Jassot, aged thirty-six, master tailor to the —— regiment, small, slender, irregularly developed, his chest being flattened at the sides; hair bright chestnut, skin white, flesh soft, had always enjoyed good health, although he appeared languid. He contracted a violent cough, fever, and pain in the left side of the chest, in consequence of remaining

an hour at rest, exposed to a cold wind, after having his boots filled with water in crossing a brook. Some remedies were used; but the energetic means proper in cases of inflammation, such as bleeding, topical emollients, or revulsives, &c. were not resorted to.

He recovered a little, and retained the cough only, with a dull heavy pain in the chest. By degrees these symptoms became so troublesome, that Jassot was obliged to enter the hospital. I never could precisely ascertain to what extent the fever had existed previous to his arrival: according to his own account, the pulse had for a long time past been excited, especially during the night. This man was not one of the few who are capable of giving a good account of their own sensations. The following was his condition, three months after the action of the determinative cause.

Continued fever, without lesion of the muscular strength, or of the secretions, and with very little diminution of appetite; the fever increased after eating, particularly at night; a constant sensation of weight in his chest; general pain in almost every part of this cavity, but most severe on the left side: great difficulty of breathing, which obliged him to be almost constantly setting up. The respiration was neither quick or convulsive, (neither was it with the other patients similarly affected.) Cough very frequent, especially during the night; expectoration white, globular, thick, abundant, which in a few days became fetid.

I applied blisters, and gave him mucilaginous, kermetized, scillated, anodyne, etherized, balsamic, &c. pectoral mixtures,* to the extent that the stomach could bear them. The disease was superior to the remedies. The fever became more decidedly continued, and in eight or ten days after his arrival, Jassot began to decline rapidly, with a general fetor of the excretions, and among others, of his expectoration. He was constantly tormented, as much with cough at night and difficult expectoration, as by a sensation of weight and suffocation. He died the 31st of August, 1806, after having been twenty-five days in the hospital, after a short but severe struggle. An apyrexia of two or

* I still see this practice repeated, which never has cured an abscess of the lungs: for what resemblance can there be, between such an ulcer and those of the external surface of the body?

three days, with alteration of countenance, and cold and clammy sweats, preceded his last moments. He had slight diarrhœa during the last eight or ten days. His illness lasted four months.

Autopsy.—*Habitude.* Complete marasmus. *Head.* But little suffusion of serum. *Thorax.* Right lobe indurated, exactly filling the cavity, to which it closely adhered: it was filled with tubercular matter, as if effused and extravasated in the parenchyma, and a multitude of tubercles, several of which, and even large ones, were dissolved in their centre and suppurated; no large abscesses, having the bare parenchyma for their walls, were seen. The left lobe indurated and tubercular, but much diminished by a collection of white purulent matter which filled the pleura. A cheese-like exudation on that membrane, which was red and thickened. At the bottom of the fluid were found large irregularly-shaped lumps of caseous matter, some of which had in their centre an osseous nucleus of considerable size. This matter had a sour, nauseous smell, and that in the abscesses of the parenchyma was putrid. Water in the pericardium. The mucous membrane of the stomach and of the colon, was of a pale red, but without ulceration.

Observations.—Jassot's history appears to me calculated to reässure those who have the misfortune to be born with constitutions inclined to phthisis, respecting the preëxistence of the germ of this complaint. There never was a temperament more predisposed to it than his. A contracted chest, an irregular frame, black, uneven teeth, all indicated that the white tissues had been developed with great difficulty: however, the pulmonary lymphatics had maintained an equilibrium with their fluids, until he was thirty-six years of age, and perhaps never would have been engorged, but for the pleuro-peripneumony produced by the cold. Individuals with delicate chests, should then dread inflammation. If it can communicate a fatal impulse to the lymphatic fasciculi of the pulmonary organs, in men as strongly made as Phalire and Bonny, what will it not do with those of weak and relaxed tissues? Jassot's case proves how rapid the progress of lymphatic disorganization can be in such constitutions. But, as in this patient, the sanguine phlegmasia was not attended to, it is doubtful whether it would have been as serious if the phlogosis had been attacked in its early stage, by bleedings and revulsives. We cannot too strongly insist upon this fact,

for we live in an age when the fear of *asthenia* causes a prodigality of stimuli, too often at the expense of the health and even life of the patient. It is during the age susceptible to pectoral inflammations, that men fear phthisis; it is by preserving themselves from the one, that they will avoid the other. But of all the pulmonary inflammations, it is most important to subdue that of the pleura the moment it occurs.*

Jassot recalls to memory, what I said respecting osseous concretions, in the exposition of the organic diseases of the lymphatic system; in the phthisical, they always form in a mass of tubercular matter or lymphatic pus, sufficiently great to prevent the vital influence from deranging the effect of chemical laws, and placed in a way, that the introduction of the air cannot excite putrefaction, to which animal fluids have a greater tendency than to any other combination whatever.

All tubercular phthises, the consequence of chronic pleurisy, do not present this hectic, fetid, and consumptive fever, which we have just seen, because the tubercles do not always suppurate. They may even be found in great abundance in the parenchyma, without a single one being dissolved. Thus a predisposition to tubercles is not the predisposition to their suppuration. It would be very difficult to assign the causes, for tubercles never suppurate, although abundant, and although seated in a sanguine and irritable lung, ought it to be attributed to a want of humidity in the particles of tubercular matter, too closely connected to effect the alteration which converts it into putrid matter? If this could be answered in the affirmative, it would still be necessary to ask, to which constitution of the human body it belongs to secrete similar fluids. These questions are premature. Let us for the present observe, that many patients with phthisis, either spontaneous or accidental, die with lungs filled with dry tubercles, and let us study to point out the external symptoms of this grade of phthisis. We ought not as yet to speak, except of *accidental* phthisis, resulting from chro-

* Disorganization is more to be feared from chronic catarrh, than from pleurisy: this is proved, by a person being able to live much longer with the latter than with the former. But a person afflicted with chronic pleurisy, is always exposed to catarrh and pneumonia, which are developed from very light causes. Therefore frequent returns of these phlegmasiæ terminate in pulmonary phthisis. It is consequently highly necessary to cure pleurisies perfectly.

nic pleurisy. It is very closely allied to simple chronic pleurisy. In reporting the cases which I have collected of this dry tubercular pleurisy, I shall compare it with simple pleurisy, with the intention of seeing if any thing announces the presence of tubercles.

CASE LI.—*Dry tubercular phthisis, occasioned by a chronic pleurisy.*—Renaud, a soldier in the forty-eighth regiment, twenty-three years of age, very tall, slender, frame regularly developed, notwithstanding the chest was small in proportion to his height, soft chestnut hair, complexion pale, contracted a cough, with pain in the left side, during the victorious march of the grand army. This pain, and the cough which accompanied it, were not at first sufficiently intense to oblige him to abandon his duty: it was not until after the arrival of the second corps in Friuli, that he thought himself ill enough to enter the hospital of Udine, two months after the first attack. He remained in it about one month and a half, during which I observed the following.

The first month, several rather violent febrile accessions, which corresponded to the increase of food, and yielded to regimen, and to aqueous and relaxing medicaments: with each of these, the cough, which was always dry, increased or relaxed. I suspected the existence of chronic catarrh, and having adopted light food and the use of a combination of sweetened mucilages, kermes mineral, ether, and preparations of squills, I established an exutory. All this had such an effect, that Renaud thought himself cured for more than a fortnight.

However, as his appetite tormented him, he was clandestinely guilty of excess in eating, which roused the sanguineous system, produced terrible suffocation, a dry and continued cough, and violent pains in the left thoracic parietes, which exhibited the character of a pleuritic collection: he almost lost his life.

From that moment, Renaud was discreet and tractable, but it was impossible to repair this new attack upon a shattered constitution. The pulse remained hard, without being very frequent; skin a little hot at night; nocturnal cough obstinate and distressing; œdema of the eyelids and of the inferior extremities began to appear.

During the last month of Renaud's life, there was very little

change. All the symptoms were reduced to a nocturnal cough, with very little expectoration, a pain in the chest, and a peculiar vibrating rigidity of pulse, without frequency, excepting at night and after eating. The œdema continued; the patient scarcely lost any flesh; there was no derangement in the functions of the abdomen, but when he gratified his appetite too much. Yet he felt his strength fail; his pale complexion assumed a leaden and livid hue, his features altered; difficulty in breathing made him dread night, and compelled him to be almost constantly up, for he had still strength enough to walk a little every day. His mind was prepossessed with fatal presentiments. He passed from this state into a lingering agony, with impeded respiration, as is the case with all those who die deprived of blood: he retained his senses to the last.

Autopsy.—*Habitude.* Infiltration moderate, muscles pale, as if they had been washed; still large enough for the subject, who never had been fleshy. *Head.* All in a good state, a little water in the arachnoid. *Thorax.* The left cavity filled with a serosanguineous fluid. The lobe reduced to a very small size, very much compressed, and united to the internal and superior part of the cavity; extending the length of the mediastinum by a flattened and adhering band, as far as the diaphragm, to which it united in a very solid manner. The superior portion was indurated and nearly entirely transformed into dry tubercles. The descending portion, or the fleshy band, presented a flabby serosity, resembling flesh, and without tubercles. The pleura which circumscribed the collection was red, thickened, and presented but a slight exudation. The right lobe filled exactly its cavity, to which it strongly adhered on all sides; but it was diminished nearly to a third and pushed up, as it were, by the liver, which was not however very large. This lobe was indurated, and amongst the numerous tubercles which formed the greatest part of its volume, none appeared in purulent liquefaction. There was but a very small portion of the parenchyma in a state fit for respiration. The *abdomen* was in a good state.

Observations.—The continued hardness of the pulse and heat at night, rendered permanent in consequence of the imprudence which reproduced the inflammatory symptoms, might have led to a belief of the development of tubercles; but the sensation of suffocation, the loss of strength, and above all, the loss of colour,

rendered them much more probable, especially since the pleurisy could be recognised: it is upon the following facts that I rest my assertion. These symptoms announced the obliteration of a great number of the air cells and of the sanguine capillaries of both parenchymata. Now, a pleurisy confined to one side, does not greatly change the colour of the skin, as long as the opposite lobe is able to perform its functions well. Here then the pleurisy must have been either double or else the lungs were compressed by foreign bodies developed in their own substance.* But there was much less probability of a double effusion than of tubercles, as the pain had always been confined to one side of the chest. These considerations alone might have led to a belief of the existence of tubercles.

But even if there had been sufficient cause for believing in a double collection, there was still reason to dread dry tubercles, upon seeing that the respiratory function was deteriorating almost without a reäction of the sanguineous system. For when the lung is compressed in a short time, by a pressure exercised upon its exterior surface, the result is always a hectic from pain, much stronger than when the respiratory threads are obliterated by the development of the white fasciculi. The reason for this difference appears to me to be, that this last mode of obliteration necessarily supposes that the whole morbid action is concentrated in the lymphatic system, or else that the sanguine capillaries are endowed with but little energy, whilst they possess all their vigour when the irritation is confined to the tissue of the pleura. Therefore, when in addition to the symptoms of chronic and latent pleurisy are added a great alteration in breathing, great loss of colour, and a tranquil circulation forbids our attributing these diseases to sanguine inflammation or to ulceration, there is every reason to suspect the existence of dry tubercles.

Additional evidence of his predisposition to dry tubercles without phlogosis, will be shown in the chronic pleurisy of the patient whose history we proceed to give.

CASE LII.—*Dry phthisis, marasmus without fever, depending on a chronic tubercular pleurisy with peritonitis of*

* These foreign bodies are the effect of that catarrh and of that pneumonia which generally take place in lungs affected with chronic pleurisy, and which I have just mentioned in the note to page 293.

the same kind.—Guy, a conscript, was sent from Palma-Nuova to Udine, the 9th of July, 1806. This young man had very light hair, extremely white skin, spare figure, narrow chest, and was in the last degree of emaciation. He said he had been ill for five months. He had a dry cough, great difficulty in breathing, abdomen large, and fluctuation very manifest. The parietes of the chest and abdomen painful upon pressure. Lips and tongue discoloured; the pulse small and rather frequent; skin cold; no diarrhœa; the legs were œdematous.

This man lived four days longer, without my being able, owing to his state of suffocation, to obtain the information I so much desired respecting the cause and progress of his disease. I confined my treatment to cordial and anodyne draughts. He expired without pain.

Autopsy.—*Head.* A slightly whitish serous infiltration in the lateral ventricles. *Thorax.* Both lungs nearly filling their cavities, to which they adhered by a very thick unorganized exudation, presenting the appearance of fat melted and congealed by cold. On separating the two surfaces of the pleura, I perceived that underneath the lardaceous layer the membrane was thick, rough, and white, in consequence of an immense number of small tubercles with which its expanded and discoloured tissue was filled. On cutting the lungs in many places, I was extremely surprised to observe an induration intermixed with tubercles, which penetrated only half an inch into the parenchyma; thus the lungs were of course entirely enveloped by a tubercular layer covered by the serous membrane of these organs. This disorganization was common to both lobes. The parenchyma was sound, very crepitant, and but little engorged, in consequence of the *anemia* of the subject. *Heart* perfectly healthy. *Abdomen.* Peritoneum in the same state as the pleura, that is, thickened and granular, because it also was indurated and tubercular. All the viscera it enveloped were sound. The mucous membrane of the alimentary canal did not show the least trace of phlogosis. The degeneration of the omentum was worthy of being remarked. It was gathered up along the greater curvature of the stomach, and reduced to a small band, an inch and a half in width, and five or six lines in thickness. In dissecting this appendage, a lardaceous tissue filled with tubercles, without any trace of sanguine vessels, was found. All the appendages of the cœcum, as well as

the mesentery, were deformed and degenerated in the same way. The glands of the latter scarcely presented any thing but large lumps of tubercular matter, placed in the middle of a membrane as thick as themselves. The peritoneum was not thickened or tubercular on any of the viscera. All these tubercles were dry, that is, none were dissolved and reduced to a white and diffluent matter. They looked like a piece of fat cheese, similar to that from Holland, and emitted a faint smell of slightly musty mucus. The cavity was filled with a whitish fluid, rather glutinous and inodorous.

Observations.—Although I did not see this patient except at a period, when, from exhaustion and want of blood, fever could not be violent, the custom of comparing dead bodies with diseases, induced me to think that the sanguine system had never been sufficiently excited to produce a very intense hectic. In fact, when pleurisy is very violent, an accumulation quickly takes place in the cavity. This accumulation could not be prevented except by the engorgement or the inflammation of the parenchyma: but neither the one nor the other existed in this patient. It is then certain that the sanguine phlogosis could not have been very intense, either in the tissue of the lungs or in that of the serous membrane. Consequently, the distinguishing characters of tubercular phthisis without suppuration are, in this case as well as in the preceding, a severe lesion of the respiration, which is accompanied finally with a wasting away and loss of colour, the whole without any great degree of fever.

The tubercular diathesis developed itself with as much intensity in the serous membrane of the abdomen: but, here, the product of the disorder of the organic action of the white fasciculi, better provided with an aqueous vehicle, presented itself under the form of a thick and glutinous fluid.

Although no tubercular production could be discovered in the serous membrane of the brain, did not the white fluid, found in the ventricles, evince, that the disorganizing action, which had so visibly impaired the two other serous membranes, had also been communicated to it? Does not this disease present a striking example of what I call, *lymphatic phlogosis of the serous tissues?* an expression, by which, I wish solely to denote, that the organic actions having during a certain time been augmented in the capillaries of these membranes, there re-

sulted, in consequence of a predisposition in the individual, that kind of disorganization peculiar to the long irritated white fasciculi, which constitutes the tubercular state.

Finally, as the evil commenced in the serous membrane of the lungs, the disease can very well be classed amongst the phthises occasioned by the phlogosis or chronic irritation of the pleura.

The following propositions appear to me to present a summary of the principal conclusions, which can be drawn from the facts collected in this chapter.

1st. The depression of one pulmonary lobe, by the accumulation of the fluid product of pleurisy, and the irritation communicated to the lobe, by the phlogosis of the pleura, may determine the development of tubercles in either parenchyma, soon enough for the symptoms of phthisis to succeed those of chronic pleurisy; or disguise them in such a way as to prevent their being recognised.

2d. If the lungs, harassed by the compression and by the tubercles, are sanguineous and irritable, there is a solution of the tubercles, a red induration of the adjacent parts, ulcers of the parenchyma, very active hectic fever, and the patient dies in the last stage of marasmus, unless the violence of the symptoms hastens the destruction of the respiratory organs.

3d. If the lungs be but slightly sanguineous and little irritable, the tubercles may develope themselves in the serous membrane and in the parenchyma, and be multiplied to such a degree, as almost to cause the sanguine capillaries to disappear, without any thing being observed but exhaustion, emaciation, and a very remarkable loss of colour. The febrile action is not in proportion to the severity of the symptoms or to the difficulty of respiration.

4th. In men with light-coloured hair, slender, with relaxed tissues, irregular frames, and negroes transported to Europe, the lymphatic system the most readily degenerates into tubercles; and the less sanguine and irritable these persons are, the more they are exposed to tubercles that do not suppurate, and to phthisis, unattended with fever.

CHAPTER III.

Accidental Phthisis.

All the phthises whose symptoms we have hitherto studied, may be considered as accidental, as they were excited by the action of an evidently external cause, and as there is nothing to prove that they would have taken place if this cause had not acted. In most of the cases this was solely cold; sometimes it was external violence, such as pressure, contusions, and concussions of the thorax, &c. The immediate consequence of its action was always a phlogosis excited in the sanguine capillaries of the lungs or of the pleura. But it is evident that we have as yet considered but a small number of the accidental external causes. Would it not be very interesting now to examine whether all those of which we have not spoken, act by a different mechanism? For, if their first result were an irritation of the sanguine capillaries and always consecutively those of the lymphatic, we should already have treated the principal point of the question. What! are all these varied forms of phthisis, described by authors, the comparison of which so much wearied the erudition of Professor Baumes, reduced to a tubercular phthisis, differing only more or less from those which are called *scrofulous*, and which are so carefully separated from all others! This question well deserves investigation; but let us first examine the causes of phthisis.

Circumfusa.

It is acknowledged that a humid, foggy, and cold atmosphere, produces phthisis. We may observe that it acts in two modes: 1st, during youth, by preventing the proper development of the constitution; 2d, at all ages, by exciting catarrh, pneumonia, and pleurisy. In these two cases, if the patient experience pulmonary suppuration it is alone owing to tubercles. The first is constitutional phthisis,* which is tubercular: the second equally so, as I have very regularly seen it in catarrhal epidemics.

* The value of this opinion will be determined hereafter.

When the atmosphere becomes a cause of phthisis, through the foreign particles with which it is loaded, how does it act? These particles are vegetable, animal, or mineral.

Vegetable particles.—These are the product of the fermentation of plants, such as the miasm of marshes; this phthisis is included in the two former; for, if it be not by humidity joined to cold that the atmosphere of marshes gives origin to phthisis, it is by preventing the development of the constitution or by producing intermittent fevers and other diseases, which make the pulmonary organs a constant centre of fluxion. But, in all these cases, suppuration is alone kept up by the tubercular degeneration. Is it, as if loaded with the vapour of flour, of starch, or of hair powder, that the atmosphere becomes a cause of phthisis? I have seen the phthisis of bakers, barbers, &c. and I did not observe that they differed from those of others. Is it the dust of hemp and of flax, of gramineous grains and other powders, half vegetable, half mineral, (in consequence of the earthy particles which are found mixed with them,) that engender pulmonary phthisis? Where are the particular cases which demonstrate ulceration from this cause, without tubercles? Does not all this act by irritating the bronchiæ, by exciting cough, &c.? And have we not already remarked that a multitude of similar causes kept up chronic inflammation and terminated in tubercles?

Animal particles.—The air which is breathed in the workshops of curriers, shoemakers, those who prepare silk, worsted, &c. is charged with particles from the detrition of substances which these workmen handle, and with a vapour still more subtile, perhaps solely gaseous; the aroma which bears the smell of the bodies from which it emanates: this last cannot produce phthisis. As to the others, have they the power of ulcerating the lungs without developing tubercles in them? How do all these foreign bodies act, if it be not by exciting primarily the sanguine capillaries, the secretories of mucus, in the bronchial vesicles, and, consecutively, the lymphatic fasciculi? Their action, then, is analogous to that of cold, whether atmospheric, or of a simple intermittent fever, and to that of contusions, &c. On the other hand, can the emanations from putrefying animal substances be considered as direct causes of phthisis pulmonalis? These engender ataxic and adynamic diseases, dysenteries,

&c. but the power of ulcerating the lungs has never been attributed to them.

Mineral particles.—It is beyond all doubt, that vapours either of pure metals, of the oxides or metallic salts, or, finally, of mineral acids, produce phthisis. This phthisis is susceptible of distinctions: the mode of action of the vapourized body must be considered: certain metals alter materially the sensibility of the nerves of the lungs. Lead deadens and destroys the property which this organ possesses of *imbibing* and *digesting* the air. A general atrophy with cough and dyspnœa may thence result. But has this affection been sufficiently compared with the other species of pulmonary phthisis to enable us accurately to distinguish its characters? It is not an ulceration with phlogosis. May it not be a dry tubercular phthisis? Or rather, is not the wasting away an effect of the shock simultaneously carried to all the principal apparatus, by the saturnine vapours?* These questions deserve further examination.

Do not the mercurial and arsenical vapours, mixed more or less with earthy particles, oxides, volatilized salts, &c. which are constantly breathed in mines, in forges, in foundries, and in the shops where the different metals are worked, very often inflame the lungs which receive them? Where is the experience which proves, that these chronic phlogoses have become ulcerative without tubercles?

The mineral acids, these powerful irritants, can, inhaled in the gaseous state, ulcerate the bronchial membrane, but do they develope ulcers which extend into the parenchyma and destroy it with symptoms of phthisis, without the concurrence of tubercles?

Earthy, stony, calcareous, and other powders, are among the number of irritants, the most likely to foment chronic phlogosis of the sanguine capillaries, which is the determining cause of tubercles? Have these vapours been seen to agglomerate and produce concretions lacerating and ulcerating the parenchyma with consumption, without the phlogosis kept up by them having occasioned tubercles? This appears to me very possible.

* It might be that the consumption was much rather the effect of an irritation of the digestive organs, than the latter of the pulmonary affection. Moreover, the vapour of lead inflames the lungs as well as the digestive passages.

Then the ulcer would be subordinate to the presence of the concretion, which is analogous to the cases of phthisis from foreign bodies in large masses: phthises which may be independent of tubercles, as I shall show hereafter. But how much does fancy contribute to the effect of this order of causes! As all the workmen imbibe the same vapour, why do not concretions form in all indiscriminately? Whatever may be the temperament of the man, from the moment he has a nucleus in the bladder, it is certain that it will become a calculus. It would be speaking more conformable to the truth to say that all these different lungs receive the same quantity of the irritating bodies, but that some inflame and become sooner tubercular than others, on account of their predisposition. Have we not observed, that the same occurs to the different lungs affected with inflammation, during an epidemic of pneumonia or of catarrh?

Applicata.

Bodies which only act upon the skin modify the economy, 1st, by changing its temperature, then their effect upon the lungs is included in those of cold and heat; 2d, by deranging the order of the secretions, (see *Excreta*, which we shall examine very soon;) 3d, finally, by compression they change the order of the distribution of the fluids, or else they act by pain. Let us see how these two methods can influence the organ of respiration.

1st. *By compression.*—Clothing which prevents the free development of the chest and of the abdomen, accumulates the blood in the viscera having sanguine parenchyma, in the brain, the lungs, the liver, and spleen: from this either dilatations of the vessels or inflammations may result.

The dilatations of the pulmonary tissue, whether varicose or aneurismal, cannot become a cause of suppuration and of ulcers, without first occasioning inflammation. But can phlogoses thus excited by a pressure which has for a long while embarrassed the action of the lymphatic fasciculi of the lungs, be free from tubercles, when those which occasion chronic pleurisy are always provided with them?

2d. *By pain.*—Pain cannot produce an ulcer except by inflammation. It would be only repeating what we have already said, to discuss this subject.

Ingesta.

Corrosive sublimate, and the internal use of acids, are said to produce pulmonary phthisis. I do not know how acids taken into the stomach can ulcerate the lungs; all men who have the latter organ well constituted use them with impunity. If they produce a cough in delicate persons by irritating the internal membrane of the stomach, and this cough is speedily followed by phthisis, it is because the disease only waited for an opportunity to declare itself; and truly, there is no phthisis more tubercular than that which arises from so slight a cause.

As to the sublimate, its first and principal action is on the stomach. It may inflame, and even ulcerate it: this is incontestible; but it is not on that account pulmonary phthisis. How then does it act on the lungs? Is it by sympathy, on account of the irritation which it keeps up on the internal surfaces of the alimentary canal? Is it immediate, after having penetrated into the circulation? In either case, the lungs will not ulcerate, without first experiencing a chronic phlogosis. Is there any experience which tends to prove that chronic phlogosis of the lungs, sympathetically induced by those of the stomach, or excited by sublimate, (this viscus being sound,) can become ulcerative without tubercles?

The contrary appears to me most probable. In the first place, I have remarked that persons whose chests were disagreeably affected by sublimate, were precisely those who were constitutionally rendered the most subject to tubercular phthisis.

Besides, if I invoke the laws of analogy, I recognise that all substances, (such as the muriate of mercury,) which have the property of acting on the stomach as a rubefacient, and on the sanguine capillary system as an excitant, are more pernicious to these same persons than to those whose lymphatic system is more energetic.

I will take, for example, the mineral acids, the preparations of arsenic, or the metallic oxides. Have these substances engendered pulmonary phthisis amongst well-formed individuals and exempt from every accidental affection of the lungs? Has not their disorganizing action been confined to the stomach? If in the end pulmonary phthisis is added to the infirmities which resulted from it, must it be attributed to a specific corrosion exercised upon the lungs without tubercles? Is it not again in this case

an effect of the state of excitability, which the primitive phlogosis, and, perhaps, the immoderate use of stimulants keeps up in the circulatory apparatus, that is to say, a chronic phlegmasia analogous to those which we have already followed in their effects, and which become ulcerative only through the medium of tubercles?

Might I not also offer in support of this truth, which cannot be too strongly proved, the bad effect of remedies and inflammatory food in certain predispositions of the economy very favourable to the progress of chronic phlegmasiæ? In fact, cantharides taken internally—powerful antiscorbutics—kermes—balsams—squills—nitre—alcoholic liquors—too much animal food—spiced, hot, and salt dishes, &c. are very powerful agents, to the action of which prejudice and habit frequently expose phthisical patients in the commencement of their disease, when the phlogosis, as yet latent, can only excite a very moderate hectic from pain. These means, which are prescribed for the relief of dyspnœa, of restlessness, and of languor, never fail to accelerate the progress of inflammation and to hasten ulceration, and then follows the autopsy to demonstrate the presence of tubercles.

Thus the ingesta, either alimentary or medicinal, do not give rise to a particular phthisis, or one different from those phthises which we have hitherto examined.

I shall also associate with the *ingesta*, foreign bodies introduced in large particles into the lungs. Examples of these are multiplied. Phthisis has often been the result. I met with a case of this kind, which I communicated to the Medical Society of Emulation. I shall now resume this subject, so as to draw proper conclusions in order to elucidate this discussion.

CASE LIII.—*Phthisis with ulceration, owing to the presence of a ball in the lungs.*—Monroy, aged thirty-three, short, but square make, brown hair, muscular and stout, in an. VII. received at the battle of Novi, a ball in the upper and lateral part of the right side of the neck, which left no other trace than that which it made in entering. At first his food and drink came through the wound, which closed at last, without the foreign body having been extracted.

From that time Monroy was subject to cough; however, he continued during two years to retain his situation in the army.

As it fatigued his chest too much, he quitted the situation, and passed four years in a tolerable state. During the two succeeding years his health failed very much, he was subject to dyspnœa, nocturnal cough, and slight heat, which increased at night with irregular chills. He, however, did not cease committing excesses with women. At last, the shattered state of his health obliged him to enter the hospital of Nimeguen, on the 26th Florial, an. XIII. at which time I had charge of the medical department.

He complained of cephalalgia, oppression, anorexia, a bitter taste in his mouth; looked dull, and his breath was unpleasant. Pulse not much quicker than in a state of health, soft and feeble. Skin rather cold than warm. The patient had lost almost all his fat, but his muscles were still prominent.

An emetic and tonic drinks, were what I at first thought necessary.* The patient continued more depressed and sullen. He complained a little of pain in the chest, and constantly reposed on the left side; yet he coughed but little. He had no other symptom of affection of the chest. All the others announced a shock to the nervous system, and the imminence of a very severe ataxic fever. He sunk under it, on the 1st of Prairial, after having been six days in the hospital. He died cold, convulsed, stiff, and in profound coma.

Autopsy.—*Head.* Sinuses engorged with blood—arachnoid thickened—pia mater much injected, showing traces of inflammation by spots of a deep colour, especially on the right hemisphere, the substance of which was also more injected and denser than that of the opposite side. There was but little serosity in the ventricles, and a great quantity at the base of the cranium. *Thorax.* The right lung was sound, without adhesions, every where crepitant, and much developed. This cavity was enlarged at the expense of the other. The left adhered throughout its circumference, by a solid and well-organized tissue. The whole of the parenchyma was hepatized; it was excavated by seven or eight cavities of various sizes, some as large as a hen's egg and others less. Towards the base of the lobe, and not far from the principal divisions of the left bronchia, the ball received

* I would now abstain from such methods, which only exasperate the cerebral irritation and that of the other viscera; for the gastro-enteritis was here evident.

seven years before death was found, in a small cyst very much polished on its internal surface, and lodged in a cavity exactly large enough to contain it. The pulmonary substance immediately around it was harder, and appeared callous. The ball was not in the least injured in shape. It was perfectly round and smooth, (I have it yet in my possession.) *Abdomen* did not present any other signs of disorder, than a paleness and wasting away of the viscera of digestion.* Body without adipose tissue, presented red muscles, consistent and still large.

Observations.—I shall not make any remarks on the manner in which the ball entered, having expressed my opinions on that subject in the memoir which I communicated to the Medical Society of Emulation.† I shall only speak of the state of the lungs, evidently disorganized by a sanguine inflammation resulting from the presence of the foreign body.

Monroy's case is sufficient to prove, that a sanguine inflammation of the lungs can be accompanied by ulceration, without any tubercles being developed. It remains to be determined, 1st, whether this ulceration is common, and 2d, what are its signs.

1st. *Is ulceration of the lungs without tubercles common?* If it were frequent it would be seen in the army oftener than elsewhere, since during the winters and in rather cold latitudes, there is not one patient in fifty, in the wards of the hospitals, whose lungs are not more or less irritated or inflamed, and as, at that time, very few die without having these organs indurated. Now, although I have never neglected an autopsy, I never found ulceration without tubercles, except in Monroy. I conclude from this, simply, and without pretending to say any thing else, that these ulcerations are rare.

Neither has it been clearly demonstrated, that other observers have seen ulcers without tubercles, independent of foreign bodies;

* Some of the points of the intestinal canal should have been inflamed. Since the period at which I wrote this history, I have pointed out that the inflamed portions of the small intestines always conceal themselves under those that are sound, which at first sight only appear of a pale colour; but if they are raised up, the inflamed portions are found underneath, having their mesentery contracted, red, and filled with lymphatic ganglions, equally injected with blood and tumefied. This research was not made in Monroy's case; we were content with the exterior appearance.

† See the Bulletin of Medical Sciences, for April, 1808.

but we find in the *Memoirs of the Academy of Surgery*, ulcerations of the lungs arising from the introduction of foreign bodies into the parenchyma, and the autopsy or the cure has proved that there were no tubercles. That the lungs cannot remain long in a state of inflammation, or even be ulcerated, by the presence of a foreign body which injures and compresses them without the development of tubercles, is unquestionable.

It is now necessary to know what latitude may be given to the word *foreign body*.

Can we consider as such the different powders resulting from the pulverization and evaporation of substances breathed by men devoted to the various professions already enumerated? They certainly stimulate the organ constantly, in the same way as the ball acted in Monroy's case, although in a much less degree; but tumours accidentally developed in the lungs, and collections of pus in the pleura, also act in the same manner, and notwithstanding this, our observations prove that when the lungs phlogosed by the last-mentioned agents pass to a state of ulceration, this change is owing only to tubercles, even in those individuals, who, from their physical constitutions are the least likely to be thus affected.

From these considerations, we may at least conclude, that phlogosis of the lungs kept up by the constant presence of foreign bodies, rarely passes into ulceration without the previous development of tubercles, and that this takes place in an analogous manner to inflammations produced by any other cause.

2d. *What are the signs of ulceration of the lungs without tubercles?*—The authors quoted by Louis, in his memoir on foreign bodies introduced into the air passages, say that those patients who had a piece of lint tent, a bone, &c. in the lungs, were a prey to very severe hectic fever, with purulent and colliquative dissolution. In the three cases reported by him, it might be attributed to the pain as well as to the ulceration. Pain must be the constant effect of the stimulus of a body irritating the bronchiæ or the parietes of a wound in the parenchyma. The purulent resorption was not, therefore, the only maintaining cause of the hectic fever.

It was not so with Monroy: the ball was so situated as not to cause as much irritation; it was not in the least rough; it was not

in an ulcerated cavity or upon any nervous surface, the sensibility of which is increased by inflammation; it was encased amidst cellular tissue and solidly surrounded by a callosity almost without feeling.

It will be seen that all these cases cannot serve as a foundation for the diagnosis of ulceration without tubercles: that of Monroy approaches the nearest to it. Well! if the external symptoms caused by this ulceration are recollected, it will be seen that they produced a very moderate hectic. It was very light so long as he only suffered from induration, for Monroy was not obliged to suspend his duty, and did not cease to abandon himself to all kinds of debauchery: the hectic, therefore, was less than that of chronic catarrh, such as we have observed. Towards the end, and after the formation of the abscesses which supplied the materials for resorption, it certainly became stronger, but as Monroy did not become emaciated, I am convinced that this resorption did not continue long.

How long may it be presumed that purulent abscesses have existed?

We constantly observe that in those persons who have tubercular phthisis, little more than three months elapse between the time of the sputum becoming purulent, and death. Three months of ulceration are then generally sufficient to produce the last stage of emaciation;* but Monroy did not resemble those patients;

* Such, in fact, is nearly the progress of ulcerative phlegmasiæ of the lungs, when there is much inflammation, and this phenomenon is easily propagated from the diseased to the healthy lobe: but there are instances of persons in whom the lobe first affected alone retains the irritation, sometimes even within a very circumscribed limit. But in such cases, so long as the opposite lobe and the organs of digestion do not contract inflammation, the *embonpoint* is kept up, notwithstanding the fever and the purulent expectoration, and no one can foretel the moment of dissolution. This progress is sometimes observable in old people and certain robust persons, who, in consequence of having been badly treated during an accidental pectoral phlegmasia, have retained suppurative cavities, either in the parenchyma alone, or in one parenchyma and in the corresponding pleura. Their slight tendency to inflammation, and above all to tubercles, can alone account for the long duration of their illness. It is easy to conceive how much diet and a regular life must contribute towards it. We occasionally have in our military hospitals, men with purulent expectoration, who enjoy life in our wards, but who cannot support the mode of living in the regiment, without experiencing an inflammatory exasperation, which immediately compels them to return to the hospital.

they had both lungs affected, and he had but one. In every point of their lungs there were small tubercles, which are so many foreign bodies. Monroy had but one, and that was confined within the least irritable part of the diseased lobe. They were of a soft and loose texture, very easily affected by the least pain: that of Monroy, on the contrary, was solid and firm.

The conclusions which I draw from these different parallels are, 1st, that irritating bodies applied in a permanent manner upon the tissue of the lungs, keep up at that point a sanguine phlogosis, which, with a very great majority of men, terminates by producing tubercles: 2d, that the slenderer the subject is, and the more relaxed and excitable his texture, the sooner he experiences this degeneration; 3d, that among certain privileged persons, the lungs may be ulcerated without tubercles, at least without very evident ones.

If it be now wished to insulate the symptoms of the last mentioned ulceration, the following results will be derived; 1st, when the irritating bodies immediately after their introduction modify the combined functions, they produce by the suppuration and pain which their presence occasions, active hectic, fetor, and consumption quite as rapid as in the most constitutional tubercular phthisis, as in the examples cited by Louis; 2d, when foreign bodies harass the local susceptibility only, (organic sensibility,) of the lungs, hectic fever follows in proportion to the size and irritating properties of these bodies; 3d, if only one lung be diseased, the febrile action and the other lesions may be still less intense than in chronic catarrh, which greatly resembles accidental chronic inflammation, and death may be retarded for several years; 4th, if both sides be affected, the symptoms cannot fail being more perceptible, and death sooner follows; 5th, finally, abscess may be established in the middle of an indolent induration, not depending on the presence of a foreign body, then the pus which it furnishes for resorption very soon manifests its influence upon the organization by an increase of heat, by the continuance of that heat, by emaciation, and by change of features, which suddenly make a progress very different from the stationary condition of languor to which the patient had been accustomed. Purulent expectoration confirms the diagnosis.

Excreta et Retenta.

The excretions which may affect the lungs by their derangement, are perspiration, and all the natural or artificial evacuations, whether white, purulent, or mucus, or of blood.

The suppression of perspiration is the most frequent cause of phthisis; we have seen how it produces it. All suppurations, all exanthemata of the mucous membrane, the disappearance of which may be followed by phthisis, are known to be very effectual causes of lymphatic engorgement, not only of the lungs, but of all the glandular organs. According to the acknowledgment of authors, these causes occasion phthisis in persons, who, to judge by their appearance, were the least subject to this kind of lesion. The exanthemata of an inflammatory character, and which after their suppression do not at first act upon the lungs by giving rise to tubercles, would still affect these organs by establishing in them a chronic phlogosis. But we know in what manner chronic phlogosis produces the eroding ulcers of the parenchyma.

Bloody evacuations still remain to be considered. It has been believed that hæmoptysis, which after a certain age takes the place of other habitual hæmorrhages, could degenerate into an inflammation of the parenchyma and ulcerate it without having given rise to tubercles in it. Observation daily demonstrates the contrary. Almost all those persons who have hereditary phthisis, have in their youth been subject to bleeding from the nose, and they all die with tubercles. That other phthises supposed to be solely inflammatory, which is attributed to the delicacy and sensibility of the tissue of the lungs, and which is attempted to be distinguished from tubercular phthisis, because the patients have a fine colour and strong passions, does not differ from it in the least. When a suppressed hæmorrhage produces phthisis with or without sanguineous expectoration, it is always because the person has weak, irritable lungs, and inclined to tubercles; perhaps very often because the tubercles are already closed.

In the frequency of hæmorrhages, we can, moreover, recognise a bad condition, and a concealed weakness of the lymphatic system.* Women of slight, graceful figure, and nervous tem-

* Substitute a depraved irritability of the lymphatic system, which always exists in a greater or lesser degree in the persons described in the next sentence.

perament, and thin irritable men, are the most liable to hæmorrhages, and it is from among individuals of these temperaments, that tubercular phthisis selects its victims. There may happen accidental hæmorrhages of the lungs, which are not followed by phthisis;* but they are easily distinguished, they are known by the speedy disappearance of the febrile state, after the use of proper remedies. Whenever, notwithstanding these remedies, the pulse obstinately retains its hardness, the cheeks their colour, the skin its nocturnal heat, and the cough continues, fears should be entertained that the pulmonary phlogosis which has just succeeded the hæmorrhage, is owing to a bad condition of the lymphatic fasciculi.†

But as certain catarrhs and peripneumonies degenerate into chronic phlogosis, which induces successively a red induration of nearly the whole parenchyma, may not the same take place after hæmoptysis, which is also an inflammatory modification of the organ.‡

When catarrh and peripneumony become chronic, it is, according to my observation, either because the phlogosis was not opposed in time, or because it was rekindled at the moment of being extinguished, by a repetition of the action of the cause which produced it, most generally by cold.

The same thing may occur in the case of a plethoric and accidental hæmoptysis. Being perpetuated in this manner, it may indurate the parenchyma and consecutively foment indolent tubercles in it, as we have seen occur in catarrh; but can it produce ulcers without tubercles? It is what we have never seen, and what we should think very rarely occurred.

Before concluding what relates to hæmorrhages, I ought to point out, that when an athletic, broad-chested person, subject to bleeding from the nose, experiences a suppression, it does not usually produce its effects on the mouths of the exhalents which furnish the blood of hæmoptysis. The blood accidentally thrown back into the chest would be much more likely to cause peripneu-

* Not one of these which are really primary, would be followed by pulmonary phthisis, if it were energetically treated in its commencement, and if the causes of relapse could be avoided.

† It is that which produces it.

‡ After having paid tribute to accredited opinions, I am here seen drawing conclusions from my own immediate observations.

mony, and still more frequently would its action be directed to the heart and large vessels and be more apt to give rise to palpitation, suffocation, strangulation, habitual shortness of breath, asthmatic attacks, and varico-aneurismatic dilatations, than to enormous and rebellious profusions of blood.

It may from thence be concluded that the small vessels of the mucous membrane of the bronchiæ are so much the more disposed to bleed, as the lymphatic tissue of the viscera is more susceptible to obstruction and disorganization: but this question would lead us too far.*

Gesta et Percepta.

The voluntary and involuntary actions, and the sensations which can excite phthisis, are innumerable; but the question here is solely respecting those which produce it without bringing into play the causes we have mentioned as relating to the other hygienic influences. Shrieks, loud singing, and every violent exertion of voice; efforts, running, excessive labour, and the emotions of the mind, compose this new series of perturbating agents, which we have already seen in action in the etiology of sanguine phlegmasiæ of the respiratory organs. To discover whether these causes have a different mode of action in the production of phthisis, we think it useful to consider them under two fundamental relations, according as they act, 1st, directly; and 2d, sympathetically.

The first, or the immediate, accumulate the blood directly in the lungs, and at the same time stimulate and irritate them. These are shrieks, declamation, efforts, running, jumping, postures in which respiration is impeded, and every thing which accumulates the blood and mechanically retains it in the tissue of the lungs, that is, by muscular power. The second equally engorge and irritate that tissue, but in a manner purely nervous and sympathetic, through the influence of the mind, or by the propagation of a stimulating action exercised upon papillæ distant from the lungs. In this order we shall place the impetuous impulses of the

* Observation has clearly demonstrated to me, that the exuberant energy of the heart establishes the most common and most powerful predisposition to excessive hæmorrhages.

passions, that is, the sensations of pleasure and of pain, as well as the various combinations of these sensations which have received the name of *anger*, *joy*, *grief*, *despair*, &c. &c. The passions can produce this effect only when they act with extreme violence. We shall also add *erotic* spasms, however excited, tickling, friction, the abuse of magnetism, in a word, all those excessive sensations which impress on the præcordia a sensation of constriction and heat, and which impede, suspend, or impel, according to circumstances, the action of respiration. But it will be useful to observe, that in the highest degrees of energy these causes produce convulsive motions and a muscular action which make them all act both directly and by sympathy.

To learn how all these disturbances modify the pulmonary organs, these two reflections only are necessary; 1st, these causes accumulate in the pulmonary tissue, in the first place, the sensitive and motive faculty, and in the second, the blood; 2d, their action upon the blood is in proportion to the thinness, relaxed condition, sensitiveness, and excitable texture of the subject. Who does not now perceive that an impulse directed to the lungs may produce two effects, 1st, in the large vessels, aneurism and a varicose state; 2d, in the capillaries, hæmorrhages and inflammation? The first result is much more common than was imagined before Professor Corvisart had so much improved the diagnostics of the diseases of the heart; the second, or sanguine inflammation, is the only one which can terminate in phthisis. This disease is produced in the latter case in the same manner as in all the others which we have mentioned.

It has been seen that it was very difficult for a chronic inflammation not to produce tubercles, even in well-formed persons; how then could it fail to cause them in delicate subjects? But it is better to say that all these individuals have lungs requiring only a slight impulse to become filled with incurable lymphatic concretions.

In endeavouring to discover the causes of accidental phthisis in the abuse which may be made of the agents of which it is the province of hygiene to treat, the constant result has been that it was hardly possible for ulceration of the lungs proceeding

from this source, to occur without tubercles. But we are far from having exhausted the causes which may accidentally give rise to pulmonary consumption. Many very powerful ones may also be found in the numerous diseases with which our too frail species is afflicted.

We will endeavour to point them out succinctly, in surveying the principal divisions of our nosologic chart.

DISEASES WHICH ACT AS CAUSES OF PULMONARY PHTHISIS.

We shall here treat of those only which are not seated in the lungs.

Critical collections in consequence of continued fevers, the results of which, according to some authors, occasion pulmonary phthisis, are frequently only catarrhs which have complicated the disease during its progress, or which have succeeded to it during convalescence. This melancholy sight is but too often presented to us in military hospitals. (See what I have said on this subject in speaking of chronic catarrh, p. 82.) I have given many examples of chronic irritation of the chest becoming fatal after acute diseases. Purulent expectoration has sometimes so unequivocally occurred as to induce us to consider these disorders as critical collections. Payo, (Case 8,) Bonny, (Case 47,) might have been considered as having an abscess in their lungs. Whenever chronic affections of the chest, in consequence of continued fevers, have become fatal under my own inspection, I have always hastened to examine the state of the organs, and I never found collections or vomicæ without tubercles. But I have often observed that the disorder of the functions, the destruction of the organs, and especially the facility with which cold checked cutaneous excretions, occasioned tubercular phthisis in men who were predisposed to it from weakness of the lymphatic system, but who, without this exciting cause, might have escaped it during a very long career.

I shall on this occasion give a summary of a case of very complete phthisis, which, no doubt, was occasioned by cold, but the first cause of which could be traced to a state of languor, to which the patient had been reduced by an adynamic fever.

CASE LIV.—*Suppurated tubercular phthisis following an adynamic fever.*—Nelson, at Nimeguen, Prarial, an. XIII.—

Constitution. A negro, aged thirty-six, medium height, slender, pretty well proportioned.

Origin and development.—Adynamic fever six months before his death. Convalescence slow, owing to his weakness in autumn and winter; he contracted a catarrh during this interval, which gradually degenerated into phthisis.

Symptoms.—He was two months and a half under my care, during which time I observed a pulse without very marked frequency, at first with no heat of skin, degenerate into hectic; at the same time purulent expectoration, emaciation, tolerably severe diarrhœa, often aggravated by clandestine excesses in the use of food; decrease of reäction and slight œdema seven or eight days before his death. He died easily; his voice had been hoarse and gradually became weakened.

State of the body.—Adhesion of both lobes: they were organized and solid opposite those parts of the parenchyma the most affected: they appeared gelatinous and began to assume the fibrous form opposite to where the lungs were not so completely disorganized; both lobes were indurated and filled with tubercles, almost all dissolved, and perfectly or partially emptied, and leaving in their place ulcerated cavities, many of which could have contained a hen's egg. *Heart.* A fibro-gelatinous exudation in the serous membrane, which caused adhesion of the pericardium to the heart. *Abdomen.* Mesenteric glands tubercular.—Ulceration and destruction in insulated points of the mucous membrane of the colon. The trachea was not examined.

I do not deny that a phlegmonous collection may be formed in the substance of the lungs, which serves as a crisis to an acute disease; but I should wish such a case to be distinguished from those with which I have just contrasted it. I am persuaded that such a case is very rare. Each organ becomes inflamed in its own way. We know, from millions of examples, that the suppuration of the parenchyma is *hawked up* into the bronchiæ without forming collections, and that the cavities, when there are any, are in the tubercles. Besides, it is not as clearly demonstrated that collections similar to those of the cellular tissue, can occur in the same parenchyma. It therefore still remains for us correctly to distinguish between the inflammation which terminates in cavities without tubercles, and ordinary inflammations.

There remains to be demonstrated by the autopsy, those singu-

lar cysts containing vomica, which are said to be capable of filling and emptying themselves several times, without destroying the patient. These cysts, which are expectorated by fragments, which, in short, permit of a radical cure when they are entirely detached, they must then, I say, *be demonstrated by autopsy*, in order to point out in what they differ from those solitary tubercles, (which are sometimes found,) and to prove that they are not mucous concretions formed in the bronchiæ and in the trachea, which have been believed to be fragments of cysts.*

Intermittent fevers may become the cause of phthisis. We have already said, that they appeared to us to produce transient congestions, which have a tendency to engorge and to phlogose the lungs, and we have seen tubercles occur in the middle of a tissue in which they had produced chronic inflammation.

Phlegmasiæ, (I include here all what are called *rheumatic* and *gouty pains,)* constantly produce pulmonary phthisis by changing their seat and settling on the lungs. When they have become chronic and occasion a hectic from pain or from resorption, which carries to an extreme the susceptibility of all the apparatuses, the lungs are again liable to become phlogosed, if they happen to be too strongly stimulated by some immediate agent, or if they are accidentally forced into an extraordinary action, such as after having had the external parts of the body exposed to cold. But a phlogosis of the lungs, whatever may have caused it, always acts on that organ in the same manner, since its action is subordinate to the structure and vital properties of the tissue it occupies. This reflection obviates every ulterior discussion.

Hæmorrhages, we are told, often become the cause of pulmonary phthisis. Here again is one of those misplaced assertions, which retard so powerfully the progress of sound doctrine. In speaking of the *excreta et retenta*, we expressed our views respecting the manner in which suppressed hæmorrhages affect the lungs, and upon the conclusions that may be drawn from a hæmorrhagic habit of body.

But we must here speak of those pulmonary ulcerations which some suppose to have been produced by hæmoptysis. The time is gone by in which all sanguineous expectorations were supposed

* Advantage has been taken of these two short passages to write some long chapters: well! so much the better, if science has gained any thing by it.

to be caused by a ruptured blood-vessel, and that the non-cicatrization of the rupture, and the ulcer which followed it, served as a nucleus for the formation of abscesses; which afterwards destroyed the lungs. Every physiological physician will soon consider hæmoptysis as the effect of an organic action of an inflammatory nature established in the capillaries of the lungs. If it is recent, this action may exhaust itself without producing any serious consequences; it may also, if it is not calmed, be converted into an inflammation perfectly analogous to those whose effects we have so often followed up to the destruction of the pulmonary tissue: if it is of long standing, at the period when it assumes the modification which constitutes hæmoptysis, the lymphatic fasciculi may have already received the fatal impulse. In all these cases loss of blood ought not to be considered as the direct cause of phthisis, but rather as one of the phenomena of this disease, or, to speak more correctly, as one of the forms of inflammatory action, which is the sole cause of all the varieties of the accidental phthises under consideration.*

The *Exanthemata* are generally believed to produce by their repercussion, pulmonary phthisis. If miliary fever, measles, small-pox, erysipelas, &c. occasion pectoral inflammation,† as is admitted by every one, why do not these inflammations degenerate into phthisis, in persons disposed to this disease? Now, I ask unprejudiced physicians, whether a phlogosis which afflicts a patient already debilitated, be not more likely to terminate in tubercles than simple catarrh, or than a quantity of fluid effused in the pleura and compressing a sound lung. On the other hand, when these repercussions produce phthisis, without apparent phlogistic action, which is supposing a prodigious inertness, will they not act still more powerfully upon the lymphatic fasciculi of the lungs?

All chronic diseases which depend upon the presence, in our

* This is one of the great truths which has only been felt, at least in France, since the progress of the physiological doctrines. They are the parent ideas of this doctrine.

† It is not these diseases, that is, cutaneous phlegmasiæ, upon which rests the classification of the different nosologists, that cause pectoral inflammations: the inflammation exists in the chest before, during, and after its existence in the skin, and if it be not relieved it terminates in phthisis, in the same manner as when it is independent of any eruptive disease.

humours, of a *virus transmittible by contagion*, are known to be chiefly seated in the white tissues and in those in which the sanguine activity is the least predominant, such as small-pox, herpes *(dartre,)* and itch. Let us besides compare with them scabby excretions and cutaneous depurations, which we could not avoid pointing out in mentioning the *excreta*, and let us enquire how all these causes will act upon the tissue of the respiratory organ. It is so generally known that they impair the lymphatic fasciculi,* that it would appear ridiculous to collect the proofs of it here.

The only *nervous diseases* which can become the cause of phthisis, are those whose paroxysms are accompanied with convulsive actions and violent congestions in the lungs and in the large vessels, such as hysteria and epilepsy. But does not their mode of action greatly resemble that of intermittent fevers, of prolonged exertions, of violent passions, and of many other mechanical and physiological causes, which we have indicated as capable of causing and keeping up a state of chronic phlogosis in the principal viscera, and particularly in the organ of respiration?

We have heard a great deal of phthisis said to be produced by *hypochondriasis* and by *melancholia*. Lorry has rendered them celebrated, and all the monographs admit them. Can these nervous diseases exercise a particular influence on the lungs, capable of causing disorganization in them? Simple melancholia and hypochondriasis, that is, confined to an impairment of the action of certain viscera and to a modification of the sentient faculty, might perhaps progress sufficiently to produce exhaustion and emaciation of the patient; but how can it be believed that they are capable of causing inflammation and ulceration exactly in the lungs without affecting in an analogous manner the gastric viscera, with which they are so closely connected?

These two diseases, we are told by physicians who have written on the subject, frequently depend upon an organic defect of one of the apparatuses of the abdomen. Now, what are we to understand by these *organic defects*, if not chronic inflammation? Those scirrhosities of the digestive canal, those obstructions of the liver, which are so much talked of and so badly defined, are they any thing else but chronic phlogoses, principally

* But always by means of a previous inflammation.

seated in the lymphatic fasciculi of the irritated part? Do not all these affections begin under the influence of the stimulants to which we daily expose our most delicate organs? Are they not exasperated by all our *aperients*, our *discutients*, our *antispasmodics*, our *elixirs proprietatis, of long life, &c. &c. &c.?* But we must not anticipate on this subject, what must be more particularly considered in the second volume of this work. It will be sufficient here to observe, that when exhaustion with marasmus, in melancholic and hypochondriac persons, is unaccompanied with abdominal phlogosis,* it cannot be considered as the direct cause of phthisis pulmonalis; that, if this disease accompany it, it is owing to a morbid disposition of the lungs, altogether independent of these neuroses,† but which may be increased by them, as we know that every disease is aggravated by another:‡

* It never is.

† Independent of nervous phenomena, be it so: but this phthisis may be the consequence of a pectoral irritation, excited by the sympathetic influence of that of the gastric passages.

‡ The melancholy to which these patients are often reduced, and which becomes constant when their strength has greatly declined, weakens the circulation of the extreme capillaries, and keeps up in the præcordial centre, a painful sensation of tightness, which has a tendency *to accumulate the susceptibility* and the fluids in the capillaries of the affected part. But which is this part? It can be proved by a multitude of physiological facts, which I have not leisure to mention here, that the stomach, the heart and the lungs, are more particularly affected: besides this, we know that a state of weakness gives to cold, that enemy of the lungs, a more considerable degree of action. It is therefore evident that melancholia and hypochondriasis may contribute to the development of pulmonary phthisis. However, we do not observe, that the greatest number of cases of melancholy and hypochondriasis end in phthisis. It is because the temperament of the subjects of these diseases, is in general opposed to that which predisposes to phthisis: we observe, on the contrary, that most of those who sink under it, had organic affections of the abdomen. Therefore, although the præcordial constriction of which we have spoken, may in sound physiology, be placed among the causes of phthisis, it must be seen, that its principal action is exercised upon the stomach and upon the appendages of the digestive canal, and that it does not operate with much efficacy upon the lungs, unless favoured by a predisposition of those organs, which is seldom found in melancholic and hypochondriacal persons, and which, no doubt, does not vary far from the original disposition which produces tubercles. In the last place, it results from this, that accidental melancholy, and that which is founded on real causes, will more frequent occasion phthisis, than the habitual moroseness, always chimerical, and in some respect organic, of hypochondriacal and melancholic persons. (Note to the two first editions.)

that, in the cases in which hypochondriasis and melancholia are accompanied or dependant upon chronic phlogosis of the abdominal viscera, they may produce pulmonary phthisis or the appearance of it; 1st, phthisis itself, in consequence of that law which decrees that one phlogosis should predispose to every other; 2d, the appearance of phthisis, through the medium of a gastric cough, which frequently provokes the irritation of the stomach, so common to the neuroses in question. This cough, in fact, when it coïncides with the decay, is sufficient to induce a belief in the presence of a pulmonary disorganization which does not exist.* More ample details on this subject will be given in the chapter on chronic gastritis.

Authors have also agreed to recognise *scorbutic* phthises: they did not solely intend to designate by this denomination phthisis secondarily complicated with a scorbutic affection; they wished to have it understood that a scorbutic diathesis occasioned a particular phthisis. But have they really described scorbutic phthisis without tubercles?

Morton, who is most relied upon for the admission of this species of phthisis, in describing those affected with scurvy, speaks of engorged glands and habitual catarrhs. Some traces of scurvy can easily be recognised in these descriptions, but those which belong to scrofula manifestly predominate.

Hoffmann and many others, especially German and English authors, designate all stout persons, all those subject to catarrhal affections, as well as those individuals in whom a weakness of the lymphatic system shows itself by frequent engorgements of the glands, and by serous and rheumatic fluxions, as being of a *scorbutic complexion.* It is sufficient for them to have observed swollen gums and fetid breath, to say that their patients were scorbutic. It will not consequently be upon the assertions of these physicians that we will admit of purely scorbutic phthisis. We will only grant that a scorbutic diathesis may concur with other causes already known to us to hasten the progress of phthisis: but let us listen to modern authors.

Lind, to whom we are indebted for a valuable monograph of scurvy, says that it always more or less affects the chest. Baumes

* It also induces it in many cases: it is what the English believe they have discovered under the name of *dyspeptic phthisis.*

and Portal, recapitulating the experience of others, and comparing it with facts of their own, conclude that scurvy affects the lungs by propagating itself from the mouth to the bronchial cavities by means of the internal membrane of the trachea. But neither of them have ever shown us scorbutic ulcers destroying the lungs without tubercles; on the contrary, Dr. Baumes thinks that scorbutic tubercles may be formed.

We perceive at once that this point of doctrine is not clearer than a number of others which have not been sufficiently studied to give rise to doubts: to me, however, it appears to be of such importance, as to require elucidation. By not explaining themselves with sufficient clearness respecting the precise character of phthises which they describe as scorbutic, authors expose us to fatal applications of the most salutary precepts of our art. In fact, what would be beneficial in a well-defined scorbutic diathesis, might be pernicious in some phthises, in which slight scorbutic affections or false appearances of scurvy would lead to a belief of their being solely dependent upon this disease. Let us then endeavour to determine whether such phthises can exist, that is, whether the lungs can be slowly eroded and destroyed by purely scorbutic ulcers.

To effect this the scorbutic diathesis must be of such a nature as to admit of its being concentrated in the tissue of the lungs. But this location has never been proved. Scurvy shows itself in all the sanguine capillary fasciculi: it occasions their engorgement, their rupture, and often their decomposition. It is known that it first attacks the skin, the buccal membrane, the subcutaneous tissue, the muscles destined to the functions of relation, and that it does not implicate the tissue of the viscera until it has made immense progress. Now, the lungs, which contain the most active sanguine vessels, will not be the first of the internal organs attacked by the scorbutic diathesis. If it be the first affected in those diseases where the arterial action is carried to its greatest height, it ought to be the last in those, which, like scurvy, induce inertness in the circulatory system; therefore, before scurvy can act powerfully upon the lungs, it must have paralyzed all the ramifications of the circulatory tree, not only in tissues distant from the centre, but also in the voluminous sanguine capillary fasciculi which constitute the liver and the spleen; and the heart, relaxed, softened, and semi-aneurismatic,

will no longer have the necessary vigour to circulate actively the mass of fluids. Therefore, admitting that an extremely scorbutic lung were to fall into *deliquium* and become slowly eroded by sanguinolent ulcers—which is an impossibility, as death always prevents this disorder—the hectic fever never could acquire sufficient activity to reduce the body to a state of marasmus. Complete phthisis, purely scorbutic, therefore does not exist.

If we were now to enquire how a slight scorbutic diathesis can contribute to the production of phthisis, we see with pleasure that it is easy to assign a reason for it. When the cause which produces scurvy has paralyzed some only of the exterior capillary fasciculi, it is still possible for reäction to take place in the viscera, and especially in that of respiration. The lungs may then be in a state of irritation, and even in a very decided state of phlogosis, whilst the gums would be swollen and bleeding. Now, if it be possible for this state to be communicated through sympathy to the tracheal and bronchial membrane, it must add to the irritation of the chest. Let any one imagine, in fact, the membrane which lines the air cavities in a scorbutic state, that is to say, tumefied and constantly in a condition to permit blood to ooze from it, and here will certainly be a sufficiently powerful cause of dyspnœa and cough: it will become much more so, if the tissue which receives the scorbutic modification was previously partly phlogosed, or if the cellular interlobulary net-work, irritated and developed, has a tendency to diminish still more the breathing surface. If it be now recollected how much a scorbutic diathesis disposes the vessels to rupture and decomposition, it will easily be conceived that it must effectually hasten the disorganization of the pulmonary parenchyma.

But is not this combination of scorbutic relaxation and inflammatory irritation, which we admit to be present in the tissue of the lungs, chimerical? Certainly, if scurvy could only exist in its highest degree, it would never be found combined with fever or with a state of inflammation; but scurvy can, as we have already shown, remain a length of time confined to certain sanguine capillary fasciculi, whilst the remainder of the circulatory system enjoys almost all its accustomed energy. I say further, phlogosis and scurvy are not so incompatible that they cannot be found united in the same tissue. A multitude of facts will prove these two propositions.

Those authors who have seen scurvy under a great number of forms, in all the variety of circumstances to which man may be exposed, agree that there exists a hot scurvy, that is to say, febrile, or a continued scorbutic fever. Other physicians, not being able to make this fact agree with the theory they had adopted relative to this disease, have finally concluded that the supposed hot scurvies were only a combination of common scurvy with the continued fevers which we are acquainted with. According to them, there may then exist simultaneously in the same individual, excitement and torpor in the sanguine apparatus.

But if scurvy be complicated with a continued fever, it may coëxist with a phlegmasia. Although my own experience had not taught me this, I should not in the least doubt it. I know too well how often fevers and phlegmasiæ are united. But I have seen phlogosis establish itself in the midst of scorbutic engorgements. I have often been obliged to use gargles and emollient lotions, for affections of the mouth which were owing to scurvy. I have seen the gums, hot and burning, undergo a perfect suppuration, and afterwards disengorge themselves, and I could not doubt that this local affection owed its first impulse to a scorbutic diathesis. Mossinot, whose case I have related, (Case 13,) died scorbutic, and even in an advanced degree. Nevertheless, there was found a small abscess, filled with good-conditioned pus, in the midst of a muscle, relaxed and ecchymosed by the scorbutic diathesis: whilst in another region, the same tissue was reduced to a black pulp, as is known to be usual for scurvy to disorganize the sanguine fasciculi.

If the inflammatory action can establish itself in capillaries already affected with scurvy, the sanguine vessels, weakened and engorged by phlogosis, must be susceptible of receiving the impression of the scorbutic cause. Experience here again agrees with the argument. Whenever scurvy appears amongst the crew of a ship, or the sick of an hospital, the sores of cauteries, blisters, setons, and those caused by any injury whatever, swell, become ecchymosed, sanguinolent, putrid, in a word, assume a scorbutic character. I have been employed in a naval hospital*

* At the Hôtel Dieu of St. Malo, in the first year of the republican æra, a period when the hospital fever raged with great fury on board of the vessels stationed on the coast of Brittany, and in the estuary of Cancale. (Former note.)

where the scurvy had taken so strong a hold, that the most vigorous of the patients, who entered with a simple boil or a contusion, accompanied by local heat, were seen in a few days to have large, tumid, livid ulcers, constantly covered with a layer of black blood, which was uselessly removed at every dressing.

Thus the inflammatory and the scorbutic diathesis may equally have the choice, and combine in the same individual, not only in various portions of the circulatory tree, but even in the same branches. They necessarily contribute to each other's danger: for a tissue swollen and injected with blood by the effect of phlogosis, approaches very near to death and putrid decomposition, if scorbutic torpor takes possession of it; and every one knows how formidable fever is to the frail and relaxed tissue of scorbutic patients. There is nothing in pathology more fatal, than the union of weakness with excitement; and the danger is always in proportion to the simultaneous intensity of the one or the other condition. The Brunonians have said this already: but the bad application they made of this great principle immolated as many victims as it ought to have saved.

It might be desirable to explain, how a slight scorbutic affection can extend to the lungs, and to ask whether this propagation does not contradict the principle which inculcates, that scurvy does not attack the most active sanguine fasciculi until after having progressively invaded all the others. The answer is quite ready, and the objection should have been anticipated. When equilibrium exists in the sanguineous system, the most relaxed fasciculi are the first attacked by scurvy. It is on this account, that it is observed to commence in the cutaneous tissue and in the cellular membrane of the inferior extremities, in persons exempt from local phlogosis, who contract it through the influence of the damp and stagnant air of large establishments, where many individuals are collected together, such as houses of refuge, of detention and hospitals. But when a fasciculus of capillary vessels has been previously weakened, especially by excessive irritation, and that it then becomes actually engorged with blood and serosity, scurvy will always begin its work of destruction there. We shall also observe, that it first manifests itself in the wounds of the wounded, and in the gums of those who have painful and irregular dentition, or who are subject to fluxions of the teeth and jaws.

If the scurvy commence its attack more frequently in the gums of sailors than in any other class of society, as I have always observed to be the case, is not this difference to be attributed to their different mode of living? Sailors, obliged to chew with labour a biscuit, in general very dry, to press against their gums, salt, smoked, and spiced meats, have besides the pernicious habit of stimulating the internal membrane of their mouths with tobacco, either in substance or with the penetrating smoke of this vegetable rubefacient. Is it then astonishing, that the repercussion of the perspiration, to which the humidity of their clothing constantly exposes them, should cause fluxions of the jaws and habitual tooth-ache, and that scurvy should often announce itself in them by the engorgement of their gums and should there make rapid progress?

When any one has laboriously chewed for a long time a hard and dry crust of bread, he feels an extraordinary degree of heat in the mouth. The same sensation is felt after the mastication, usually painful, of salt beef, or of dried, salt, and smoked fish. To this, also, is frequently added a violent itching of the gums. Who does not now perceive, that these repeated stimulants tend to establish in the mouth a centre of fluxion, a species of chronic inflammation already manifested by the abundance and the fetidness of the mucus which lubricates the parts? If the scorbutic diathesis then develope itself in the system, can it fail to select a tissue, in which irritation and engorgement coëxist?

When the subject is highly sanguineous and very irritable, the scurvy induces in the gums, thus predisposed, a reäction sometimes very powerful, and which rejects every irritant. Here then is a combination of inflammation and scurvy, or, if it must be so, a *scorbutic phlogosis*. There is no practitioner, who has not, at some period or other, seen this disease, which can appear singular to those only who have not sufficiently reflected upon the most common phenomena of animated nature.

But if this species of phlogosis may occur in the mouth, why should it not do so in the mucous membrane of the lungs, when this membrane is injected and rendered more susceptible by catarrhal irritation? It can easily be conceived then that a scorbutic diathesis may soon become promptly fatal to lungs already diseased. But will it produce in them specific tubercles?

Tubercles are every where the result of the alteration of the lymphatic fasciculi: if these fasciculi are not already diseased when scurvy reaches the lungs, it will act first on the sanguine capillaries of the parenchyma, and produce ecchymosis and red induration, and afterwards softening and putrefaction, as it did in Mossinot, (Case 13,) as it always acts upon pure and simple, long-standing catarrhs. But if the lungs, whose weakened mucous membrane has just been attacked with a scorbutic diathesis, be already partly tubercular, it cannot be doubted that this fresh cause of softening of the solids, and of the stagnation of the fluids, must hasten the progress of tubercular degeneration.

Can ulcers then be formed, partaking of a scorbutic nature? The possibility of this kind of combined alteration cannot be called in question: but it must not be supposed to take place in every consumptive patient attacked with scurvy. If the external wounds become at first scorbutic, it is not thus with the internal ones. We have said that scurvy has great difficulty in reaching the viscera in a state of health: some facts authorize my thinking that it does not also very easily extend to them, even when their capillaries are seriously injured, and that the weakness of these vessels is not the most favourable predisposition for its introduction. The lungs, which we have said ought to be the least exposed to it, perhaps may require, in order to receive its influence rather powerfully, that the disease of the mouth should serve as a conductor for the scorbutic diathesis. The following fact comes very appropriately to demonstrate that it is difficult for scurvy to become a disease of the viscera.

CASE LV.—*Tubercular phthisis complicated with scurvy.* —Nourrisson, a soldier of the eighty-fourth regiment of the line, twenty-one years of age, brown hair, medium size, and well-proportioned, while carrying a sac of corn two years before his death, experienced a severe pain in the epigastric region, and also in all the lower part of the chest. He expectorated blood for some time; but, impatient to renew his customary labour, as is generally the case with peasants, he did not submit to any regular course of treatment, and continued to suffer more or less with his chest. Having been drawn by the conscription, one year after the accident, he still suffered so much as not to be able to continue the route on foot. After joining the corps, he was

constantly in the hospitals and performed no duty. Finally, his disease becoming constantly aggravated, he was unable to leave one of my wards, into which he had at last entered, and where, during seventy days, he was under my own observation.

He had frequent paroxysms of cough, frequent pulse, and moderate heat of skin; very considerable discolouration, and an astonishing change of physiognomy. He was at first treated with success by demulcents, and vegetable and milk diet. He appeared as if he would recover, when the scurvy broke out in the hospital, and he was one of the first attacked. All at once, the frequency of pulse and the heat of skin disappeared: the skin became livid, extremely dry, hard and rough to the touch. The patient could not endure the juices of vegetable antiscorbutics, although I had them prepared expressly for him, without containing any pungent cruciferous plants. I was obliged to confine myself to the first regimen. The cough slowly increased, respiration became interrupted, and the emaciation made renewed progress.

The fifteen last days he complained of extreme sensibility in the upper part of the abdomen. It appeared prominent, and was painful on pressure. The scorbutic diathesis having become more considerable, nearly all his body became covered with very dark petechiæ and *vibices:* but they did not appear on the gums. His appetite was still very good; there was occasional diarrhœa and pain in the stomach, which corresponded to the too great quantity of food: for the patient sometimes threw off the troublesome yoke of hygienic medicine. I prescribed demulcent pectorals, rendered stimulant from time to time by tonics or combined with laudanum, which the cough and want of sleep often required. I gave him occasionally a little sweetened wine.

Pale, cold, and in a state of semi-idiotism, which was observable for more than twenty days, Nourrisson was without evident fever, and could still walk a little in the ward. One day when he was complaining violently, asserting that he had not received his allowance of food, those who distributed it, thinking to give him satisfaction, left him to weigh it, and on their return found that he had expired.

Autopsy.—*Habitude.* Body greatly emaciated. No œdema; universal discolouration of the skin. The ecchymoses and the *vibices,* examined closely, presented but a little extravasated

blood in the cutaneous and subcutaneous tissues. The muscles similar to those in consumptive bodies, not scorbutic. *Head.* Serosity in the lateral ventricles, cerebral substance softened. *Thorax.* Induration almost general, tubercles rather larger than miliary; two or three cavities not exceeding a small filbert in size, not excavated in the tubercles, for they were too small, but in the tubercular parenchyma. The bronchial glands tubercular and even in part degenerated into a calcareous substance, instead of being dissolved and in a state of putridity. General adhesion of the pleuræ, in some portions by a fibrous and solid tissue, in others by a substance of a semi-gelatinous appearance, and filled with serosity, and elsewhere by an organic lardaceous exudation. *Heart* natural. *Abdomen.* White serous effusion, but small in quantity. Peritoneum opaque and tubercular even on the liver and spleen. Mucous membrane of the stomach slightly tinged with red and coated with an almost membranous mucus. Red, and even black spots, at intervals, in the mucous membrane of the intestines. At some points, perfect sphacelus of the three membranes forming the thickness of the canal but without perforation. No gas in the intestines; the fæcal matters dry, which proved that the irritation had not extended into the mucous follicles of the internal membrane. A very large scirrhus and lardaceous gland in the omentum, which was pushed up and in a state of atrophy. Several small glands, similarly disorganized, in the mesentery. The parenchymata of the liver and of the spleen in a very good condition.

Observations.—This patient recals to my memory all that I said when speaking of efforts in regard to pleurisy: but I saw nothing in the interior of his body which can be attributed to a scorbutic diathesis. In truth, a phlogosis of two years duration, did not require this diathesis to produce all the derangements which were observed; the mouth had, moreover, always been in a good condition. The effect of the scurvy was more evident whilst he was living. The torpor which it produced in the capillary system of the organs destined for the functions of relation, destroyed the feeble reäction which yet continued; but it is among the largest sanguine fasciculi that scurvy exercises its greatest ravages, and perhaps a certain febrile reäction is favourable to it; accordingly, it acted but feebly upon the cold and lymphatic tissue of our patient.

I do not then think it necessary here to reject an idea which has often presented itself to my mind, and which this patient recalls to memory. If debility alone were necessary to produce scurvy, would not Nourrisson have become scorbutic in the highest degree? The scurvy, on the contrary, always appeared not to exceed certain limits, although strictly speaking, it was not prescribed for, as the sensibility of the stomach compelled me to return to the treatment which was pursued before it declared itself. But the causes which usually exasperate it to the highest degree were not united in this patient. It is by reflecting upon them that we may hope to throw some new light on the etiology of this interesting disease.

The idea I attach to the expression *scorbutic phthisis*, is now known. Therefore, when a scorbutic patient is affected with a chronic cough, and I shall have cured him by an appropriate treatment, I shall not proclaim the cure of a scorbutic phthisis: I shall not say, that without my assistance the scurvy would have given origin to tubercles in the lungs, or that I dissolved those which it had already formed in these organs: I shall not maintain that I have saved a patient with phthisis similar to that which has immolated, by his side, another with constitutional phthisis, of which the scurvy did but hasten the termination, as in the preceding observation. I will collect new facts, and I shall wait until they are sufficiently numerous to determine the theory of this kind of disease.*†

* For the physiological theory of scurvy, see the *Examination of Medical Doctrines.*

† The following fact, which comes from an acute observer, may perhaps contribute to it. Professor Desgenettes, chief physician of the French armies, always eager to make the observations of his fellow labourers subservient to the progress of a science which he also has been enabled to enrich by his individual labours, published in the second volume of the *Journal Général de Médecine*, then a periodical collection of the Medical Society of Paris, an article which contains a description of an epidemic catarrh, observed in the troops, which may offer materials for this object. With some subjects, the catarrh was accompanied by a tumefaction and engorgement of the internal membrane of the mouth, the pharynx, and the nose. The tonsils were also tumefied; the gums very much inflamed, ulcerated, and discharged an ichorous and fetid pus; the sockets of the teeth were frequently denuded.

Antiscorbutics were found to be prejudicial; vegetable diet was all that could be preserved. The gargles were made of a decoction of barley, a little

It also results from an etiological examination of diseases, that like other accidental causes they affect the lungs by giving rise to, or by exasperating a phlogosis, the prolongation of which engorges and disorganizes the lymphatic fasciculi, and that the cases which are exceptions are very rare and deserve new researches.

The general conclusion respecting the mode of action of all these causes of phthisis which may be called *accidental*, is drawn from the particular corollaries of each series of causes. Since they have all the same result, inflammation of the lungs: since this inflammation excites by its continuance the engorgement of the lymphatic fasciculi in almost every case, the necessary result is, that there are but few phthises which are not tubercular after they are really confirmed.

As all the researches which are made in medicine, ought to have for their principal object the perfecting of the healing art, we must now examine what advantages therapeutics may derive from the theory of accidental phthisis which we have just adopted.

Ought a phthisis to be considered as incurable as soon as tubercles are formed? Many authors have boasted of having dissolved them. We even read in some works of cures of phthisis in which the tubercles had suppurated. How much physicians would have hastened the progress of their art, if they had always been more sincere and less credulous! But very few have had the courage to confess their mistake. Unfortunately for science, there exist many, who, deluded by a fatal vanity, have only written that their cures might be admired. Hence the habit was contracted and handed down from age to age, although always condemned by the learned, of being silent on the unsuccessful cases, and of exaggerating the symptoms of the diseases over which they

vinegar, and the juice of lemons. It is added that scurvy was sometimes complicated with this species of catarrh.

It is in vain to attempt to make this disease an affection independent of scurvy: founded upon the evidences of my senses, I think myself privileged to consider it as a complication of catarrh with a scorbutic diathesis as yet but little advanced, and to place it by the side of those facts which I have just assembled together, and which substantiate the possibility of the union of these two diatheses. (Former note.)

triumphed. How few authors have written with the spirit of Morgagni!

Immoderate credulity is not less fatal to the progress of science. Upon the faith of a great master, who may have incorrectly traced the specific characters of an incurable disease, a subaltern writer will dare to advance, that he has cured that disease, without caring to verify whether he has not too lightly admitted the symptoms upon which he founded the diagnosis. It is thus, not to mention any others but diseases of the lungs, it is thus, that individuals are looked upon as having tubercles, who have hectic fever with irregular returns of peripneumonic symptoms. If such a patient be restored, a cure of suppurative tubercles is proclaimed and formulæ of solvents, of detergents, and of cicatrizers, are pompously displayed. However, our observations on chronic catarrh, have demonstrated, that repeated attacks of inflammation were rather an indication of the absence, than a proof of the presence of tubercles, when, during the intermissions, the heat of skin and frequency of pulse very much diminish. In that case, it is often perceived by examining attentively, that these ephemeral phlogoses correspond to an increase of the food or to the use of some unaccustomed stimulant.

No doubt, there may exist curable tubercles: they are solitary tubercles, or, at least, very few in number. Fevret, (Case 12,) who died of catarrh with intermittent fever, had a single large tubercle. If this man had become consumptive by the suppuration of this lymphatic mass, could not his cure have been possible after the entire destruction of the foreign body? These are the only curable tubercles. But ordinarily the cause which produces one tubercle, produces thousands. Before falling into *deliquium*, they are already changed into an inorganic mass, into true foreign bodies, irresolvable by any solvent whatever.

If then it be wished to render the cure of suppurating tubercles probable, it would be necessary to say, that the individual having them, had an active and continued hectic fever, with fetidness of the excretions, purulent expectoration, and *emaciation*. This last point is particularly important: for the extenuation of the fleshy tissues does not become rapid until the period of the resorption of fetid pus.

If tubercles are incurable and ought not to be treated, at least in the greatest number of cases, then the phlogosis which pre-

cedes and produces them, must be subdued as soon as possible in individuals threatened with accidental phthisis.

This is in fact the object indicated by the most judicious authors; but to this indication has been added a multitude of others, purely hypothetical. The most pernicious is that which requires the administration of stimulants, under the name of *resolvents*, *dissolvents*, and *detergents*.

I do not mean, however, to maintain that some energetic stimulants are not useful at the period when it is presumable that tubercles are formed.* I shall explain myself shortly upon this important point, in connexion with spontaneous phthisis, to which that treatment is the best adapted. The question now is particularly of accidental phthisis, whose treatment it has been here my object to perfect. If the classification of its causes and the explanation of their mode of action, can concentrate the indications and reduce them to a principal one, easy to detect, and to which all the others shall be subordinate, the treatment will necessarily gain much. It is this which I wished to accomplish, in attributing all phthises to a permanent irritation of the pulmonary tissue, always maintained by the same vital laws and fomented by the same exciting causes. The only indication will then be to destroy this irritation soon enough to prevent it from producing tubercles. To fulfil it completely, it will be necessary to know perfectly the positive and negative evidences of this irritation, whether it be confined to the sanguine fasciculi of the mucous or serous membrane of the pulmonary organs, or whether it has already penetrated into the lymphatic fasciculi and provoked the development of tubercles. I commenced by pointing them out in the detailed exposition of accidental phthisis: but to concentrate them with more clearness and to make them appear successively in an analytic summary, I ought first to give a history of the spontaneous and primitive consumption, which particularly retains the specific name of *constitutional* or *hereditary phthisis*.

* I do not at the present day see the utility: but at that period I had not yet reduced the lymphatic affections to their proper value.

CHAPTER IV.

Of Spontaneous or Constitutional Phthisis.

We have already remarked, that it was difficult in many cases to decide whether a phthisis was *spontaneous* or *accidental*, because there are but few patients who do not attribute the first cause to some accident. If the conclusions which have been drawn from the mode of action of the different causes, are admitted, it will be granted that it cannot be otherwise. When an individual is predisposed to phthisis, a cold, a fall, an excess of food, in a word, any commotion whatever affecting the economy, will be sufficient to determine the most rapid progress in the disease. But a phthisis ought, in correct physiology, only to be considered as accidental, when the phlogosis which has produced it has been sustained by a cause constantly acting during a longer or shorter time, for example, a collection in the pleura or mediastinum, a catarrh, frequently renewed by cold, foreign bodies which constantly provoke cough, an obstinate use of all kinds of irritants, &c. If the phlogosis excited by such causes diminish when their action is suspended, or when plethora is prevented by a severe regimen; if it reäppear under opposite circumstances; in short, after a long suspension, if the symptoms of tubercles proclaim themselves, and the characters of phthisis are exhibited, all that is requisite to determine whether it be accidental, is present, because it is probable that without the concurrence of the determining causes it would not have declared itself. If amongst thirty persons, ten were habitually exposed to cold, and these ten die of phthisis, while the remainder survive them, is it not very probable that the first would have also lived, if they had been withdrawn from the action of that cause? This may be constantly observed in the army, if a corps of troops, stationed in a damp and cold place, be compared with one which sojourns in a dry atmosphere; soldiers well clothed, with those who are not; those who neglect their colds, with those who know how to treat them, &c. &c.*

* How could men of judgment, who had read this passage, admit of the *innate* existence of tubercles, the fatality of phthisis, without the intervention of the influence of temperature?

But if a cold, for which every precaution has been taken, continues with symptoms of a tubercular condition—if a slight fall, a trifling contusion of the thorax, a debauch which is not repeated, leave in their train an irritation which becomes hectic, notwithstanding appropriate remedies—a tendency of the pulmonary lymphatic system to engorgement, and to tubercular disorganization, ought to be suspected. When, at the same time, it is observed, that the patient has slender limbs, delicate frame, narrow chest, and a relaxed tissue, presumption soon changes into certainty.

The inspection of the parts after death coïncides with the evidences which have just been mentioned. When tubercles are only to be attributed to an obstinate sanguine phlogosis, red induration is found to predominate, and there are but few tubercles, as in chronic catarrhs, the history of which has been given, or the cause which exercised the compression and propagated the inflammation is perceived, as in chronic pleurisies. It is useless to say, that if the accidental cause has acted upon a highly predisposed subject, the disease of the lymphatics may be extreme. See the *histories* of André and of Jassot, (Cases 44 and 50.) But the bodies of those who have died with original phthisis, present a disorganization of that system, as extensive as it can be met with after the action of the most intense and obstinate accidental cause, although the disease has been excited by a slight impulse.

In such bodies, the effusion in the pleura is not seen: the inflammation having always existed in the parenchyma, this membrane is found adhering to itself by an organized production.*

I shall now report some observations upon those phthises remarkable for a decided tendency of the constitution to tubercular inflammations. They are characterized as much by the futility of the causes to which the patients attributed their origin, as by the temperament.

CASE LVI.—*Constitutional tubercular phthisis, with ulceration.*—Guénard, a soldier to the ninety-second regiment,

* A circumscribed phlegmasia in the upper portion of one lobe, below the clavicle, does not prevent the development of a pleurisy at the base of the chest on the same side, produced by an accidental cold. It is not so, when chronic pneumonia occupies the greatest portion of the lobe, for the reason which has just been given.

twenty-three years of age, light and soft hair, white skin, tall and slender, muscles small, chest very much contracted, long neck, long face, (this man was long and slender in all his dimensions,) had frequently had catarrhal affections, but of short duration. He performed the campaign of an XIV. with a great deal of courage, and without extreme fatigue, although he coughed frequently, as was customary with him. Three months before his death, he entered, for a rather more severe catarrh than the preceding, the hospital of Gratz, from which, at the end of eleven days, he was removed to Klagenfurt. During the route, he suffered from the cold in the mountains, and his disease became exasperated.

After remaining at Klagenfurt for some time, finding himself nearly well, he requested his discharge. The pectoral symptoms reäppearing, and the patient being in the vicinity of Udine, he was received into the hospital in the beginning of March, 1806.

I only perceived at first a dry cough, with frequent pulse, but without heat of skin. The long standing of this catarrh, and the constitution of the subject, giving me a great deal of uneasiness, I submitted the patient to a rather severe vegetable diet and repeated blisters; I used, as internal medicines, aromatic mucilaginous juleps and pills of opium and ipecacuanha.

The fever from being obscure became daily more marked. The skin was hot only in the evening and during the night; but the frequency and tenseness of pulse did not abate. Several times, in consequence of abstinence, the accessions at night lessened in intensity, and although the frequency of pulse was still the same, Guénard felt very well and requested more food. If a little more than ordinary was allowed him, or if he partook of meat, the frequency of pulse redoubled, the heat became continued, and the cough lasted all night. Diet again reduced the hectic to its first degree.

He had been scarcely a month at the hospital when his expectorations assumed a purulent appearance. The night sweats became regularly established, and emaciation began to progress. Diarrhœa appeared only upon an increase of food, and a return to a strict diet suppressed it immediately.

The following month, the decay was still more rapid, and the appetite more troublesome than ever. Knowing full well that the case was hopeless, I did not think it any longer necessary to refuse him such food as he desired. I merely endeavoured to

proportion it to his digestive powers, so as not to keep up too violent a diarrhœa.

In this way Guénard gradually fell away, without complaining of much dyspnœa, or having anxiety. He said that if he did not cough he would be perfectly well, and he was always in excellent spirits. Towards the end of the second month, his face became infiltrated: the cough and the want of sleep fatigued him very much. The 30th of April, Guénard expired in a comatose state of some duration.

The known persistence of the disease, calculating from the time when the catarrhs succeeded each other with scarcely any interval, was three months, two of which were passed at the hospital of Udine: but it must be observed that Guénard was so subject to catarrh, that he could not say with precision when he commenced to suffer from his chest.*

Autopsy.—*Habitude.* Marasmus almost complete. *Head.* A limpid serosity in the lateral ventricles, which were a little dilated: serous effusion in the inferior fossæ; cerebral substance white and firm. *Thorax.* Both lungs almost entirely hepatized; about the fourth part of the left only permeable. All the indurated portion filled with tubercles, the greater number of which were dissolved and emptied in the centre, forming so many cavities which had eroded the parenchyma. There were many others, smaller and filled, which appeared like so many white points, either scirrhous, or reduced to cheesy substance. The surfaces of the pleuræ closely adhered every where by a well-organized tissue. *Heart.* A great quantity of thick serum in the pericardium, and some traces of inflammation in the serous membrane of the heart. *Abdomen.* No other appearance than gray spots on the peritoneum; the mucous membrane was sound. A phlegmonous tumour which appeared in the left groin during the last days of illness, on being examined, presented a white inodorous pus. Its cavity was small.

Observations.—This pulmonary phthisis presents a complication with a cerebral affection, which accompanied the dying moments. It is to be remarked that there is almost always some local irritation remote from the chest, in phthisis with eroding

* It is to the repetition of the catarrhs that the development of the tubercles must be attributed.

ulcers of the parenchyma. In most men it is diarrhœa; sometimes it is a laryngeal or tracheal catarrh: in Guénard it was a small phlegmon.

We shall give a summary of some cases of constitutional phthisis, first with the intention of fixing attention upon the varied forms of the *hectic fever of suppuration*, and upon the differences of organic alteration; and in the second place, to particularly study these local affections, all which belong to chronic phlegmasiæ.

CASE LVII.—*Constitutional suppurating phthises, with various accessory symptoms.*—1st. Guérin, at Udine; in the month of June, 1806. *Individual history.*—From twenty-three to twenty-five years of age, flaxen hair, tall, slender, relaxed, and having but little sensibility.

Origin and development unknown, even to the patient, who knew but little of his situation.

Symptoms.—During two months stay at the hospital, active hectic, frequent and hard pulse, and heat of skin. But little dyspnœa and pain in the chest. Prodigious appetite. A constant increasing inclination to sleep, and during the last month, absolute somnolency and stupidity, with dilatation of the pupils. Death, almost without a struggle and in a state of coma. He had had moderate diarrhœa, always in direct proportion to the quantity of food.

Autopsy.—Semi-marasmus. *Head.* The lateral ventricles greatly dilated by a slightly whitish and flaky fluid, amounting to more than eight ounces. The same fluid abounded in the base of the cranium. *Thorax.* The right lobe so filled with miliary tubercles and so much engorged, as to appear impermeable, but not indurated to a state of hepatic solidity. Three or four abscesses, excavated in the middle of the parenchyma: but no tubercle sufficiently large to form in itself a cavity. The left lobe free, and every where crepitant, containing fewer tubercles than the other, without the least ulceration. *Abdomen.* Some points of inflammation in the mucous membrane of the intestines.

2d. *Gony*, at Bruck in Styria: month of Frimaire, an. XIV.

Individual history.—From twenty-three to twenty-five years of age; flaxen hair; slender, narrow chest; extremities of the long bones large; very irritable.

Origin and development.—The fatigues of night guard and marching. The phthisis was preceded by a catarrh, the beginning of which the patient could scarcely recollect.

Symptoms.—Active hectic fever until death, with a hard and frequent pulse and heat of skin; cough and purulent expectoration; fetidness of excretions, pain in the thoracic parietes, diarrhœa. Complete marasmus. Died in great agony, without coma. Duration of hectic and symptoms of suppuration, forty-five days.

Autopsy.—Extreme emaciation, muscles pale, organized adhesions in the whole circumference of both lobes: parenchyma indurated and filled with tubercles, most of them in a putrid state, or so destroyed, as to leave but an ulcerated cavity in the parenchyma. This disorganization was more considerable in the superior, than in the inferior portion of the two lobes, where the tubercles were small, solid and perfect. The mucous membrane of the colon red and ulcerated.

3d. *Edon*, at Udine: month of June, 1806.

Individual history.—Twenty-four years of age, hair very light, tall and thin, chest small in proportion to the rest of the body.

Origin and development.—Unknown to the patient. The cough had increased insensibly.

Symptoms.—Active hectic fever, with heat of skin and tenseness of pulse until the day before his death. Cough, pain on one side of the chest, dyspnœa and purulent expectorations, fetidness, slight irregular diarrhœa, somnolency towards the close. The last day he was calm, and had hopes of recovery: his death was easy, in a state of coma. I observed the fever during only eighteen days.

State of the body.—Marasmus in the third degree. *Head.* Serous effusion in the lateral ventricles, which were evidently dilated: and rather a large quantity in the occipital fossæ. *Thorax.* One lung free: the other, and the most diseased, adhering in its whole circumference: both indurated and filled with large and dissolved tubercles, forming an equal number of abscesses. *Heart*, normal. *Abdomen.* Some black and red spots, separate and without ulceration in the mucous membrane of the colon.

4th. *Isidore Kina*, at Udine, August, 1806.

Individual history.—A negro, from eighteen to twenty years of age; thin, but regularly developed: chest, well proportioned to his size.

Origin and development.—Long subjected to severe catarrhs, which had always been carefully treated. Phthisis made its first appearance in the same manner as all the colds which had preceded it, and increased rapidly, although he was in the hospital and properly treated.

Symptoms. Hectic fever during forty-six days, at first slight and without any uneasy sensation, excepting cough, and white, thick and rare expectoration: afterwards more frequent, with dyspnœa, sense of choaking and attenuation: towards the close, it became very violent, with excessive and constant restlessness, threatenings of suffocation, and abundant expectorations of blood and of pus. The agonies of death were violent.

Autopsy.—*Habitude.* Semi-marasmus. *Thorax.* Both lobes firmly indurated almost throughout. They were filled with large or small tubercles. In the superior portion of the right lobe, was a large abscess with granulated, lard like, tubercular parietes, and having a cancerous appearance. This abscess was in both parenchymata, and filled with a kind of bloody, very fetid pus, in a state of decomposition. Several tubercles were in a state of putrescency and empty in their centre, but not sufficiently so to produce ulcers. In the superior portion of the lobes were perfect tubercles, so numerous and close together, that the pulmonary substance appeared white and lardaceous on being cut. *Heart* sound. *Abdomen.* No part diseased, not even the mesenteric glands.

Observations.—A greater number of examples of this grade of constitutional phthisis would be superfluous. There always will be observed, 1st, a slow and obscure development, marked by the frequency of habitual catarrhs, and the exasperation of a dry or moist cough, notwithstanding every therapeutic and hygienic precaution, in a relaxed, thin, and irritable individual; 2d, a hectic fever, at first feeble, confined to a slight frequency of pulse, and a heat of skin rather above a state of health, and *hectic from pain,* at the same time paroxysms of extremely fatiguing cough, frequently preventing sleep, with mucous expectorations as yet transparent; 3d, at last, violent hectic fever, with fetidness of the excretions; puriform, ichorous, bloody, and fetid expectorations; rapid emaciation. The more intense these symptoms become, the greater is the pain and dyspnœa experienced by the patient; the fever continues until the approach of

death, and sometimes until the last moment of life; the patient expires in a violent agony before complete extenuation of the muscular tissues. When the symptoms are moderate, the patient becomes extenuated and exhausted almost unconsciously. The fever often abates several days before death, which does not take place until marasmus is complete. The patient, who had begun to encourage hopes of recovery, unexpectedly expires: sometimes, however, an undefinable sensation suddenly convinces him that he has not sufficient strength to live.

Such is the grade of pulmonary phthisis which has served as a type to different authors who have written on this disease. All recognise in it the three degrees which have just been pointed out. It is from the desire to compare all other pulmonary consumptions with it, that so much confusion has been thrown in the general history of phthisis, and in the theory of its treatment.

The habit of blending the description of the accessory symptoms of the disease with those which are the fundamental evidences of it, has not been less prejudicial to the advancement, now so necessary, of our knowledge of the pathology of pulmonary affections. As these symptoms are far from being constant, in pointing them out it has been necessary to make use of the phrases *sometimes, occasionally, often, in certain cases, under other circumstances*, &c. vague expressions, which very clearly show our ignorance of the cause of the phenomenon, and that we know not to what other to attribute it. I admit that this style of speaking cannot be banished from pathological language, until that science shall be perfected; but, although this period is yet distant, we should not accustom ourselves to employ them, and especially never to use them with the intention of rounding a period.

The following are essential to the grades of constitutional phthisis which we have just been studying, viz. 1st, the spontaneous development of tubercles in the pulmonary parenchyma; 2d, the progress of an ulcer which destroys that parenchyma; 3d, a very violent and very destructive hectic fever with fetidness of the excretions. But the degenerated and putrid pus keeps up the hectic fever entirely by stimulating the whole economy:*

* It would be better to say by stimulating the cavities of the viscera, where it keeps up an irritation, which finally terminates in phlegmasia. From thence arises gastritis, enteritis, colitis, laryngitis, cephalitis, meningitis, and even external phlegmasiæ.

this is proved, 1st, because the greater the quantity of pus, and the more irritable and sanguineous the patient, the more active and destructive is the fever; 2d, it increases and is destructive in proportion as the patient makes a greater use of stimulants. The susceptibility is then greatly increased by hectic fever, or at least by the cause which produces it.

Moreover, the *autopsies* point out traces of phlogoses in the organs, whose action has been consecutively impaired. May not these inflammations then be the production, at least indirectly, of the irritation which the hectic fever keeps up? I will take for example the diarrhœa called *colliquative.*

We have often ascertained that it corresponded to the redness and ulceration of the mucous membrane of the intestines. Have we not also observed that it was wanting in catarrh and chronic pleurisy, when the hectic fever from pain had remained inactive, or had been very slight? I have more than once arrested it, in such cases, simply by diminishing the quantity of food. On the contrary, when tubercles added to these affections, have increased the fever,* the alvine discharges were much more frequent; but it might also have been observed, that those in whom sanguine phlogosis predominated most, and in whom tubercles excited an active hectic from violent pain, escaped it with more difficulty than those under opposite circumstances. The same remarks might have been made in regard to the influence of regimen upon this epiphenomena of the diseases of languor. Finally, amongst the patients afflicted with violent hectic, either from pain or from suppuration, very few have been observed whose death has not been hastened by colliquative diarrhœa, and they were always the least irritated, such as Guénard, (Case 56,) excepting those who were destroyed by the violence of the hectic from pain, in the commencement of the chronic state. (See the Cases 37, 38, 39, 40, and 57, No. 4.)

* I have already remarked my not believing that tubercles could greatly increase fever. I think so, because, since I composed this work, I have found them in great numbers in the lungs of persons who had almost constantly been in a state of apyrexia. The fever is usually in proportion to the inflammation which produces them, and but seldom in proportion to their number. Consequently, in those individuals in whom they are easily produced, the inflammation would engender many, although it might not be very active: if it should be, there will be more fever, and they would become suppurative much sooner.

Thus we attribute the colliquative diarrhœa to the general irritability, carried to an extreme by the stimulus of the perceived and unperceived pain,* that is to say, by that of the phlogosed tissue and by the incitement of the putrid absorbed pus. It remains now to determine why general irritation transforms itself sooner into phlogosis in the mucous membrane of the intestines than in any other part.

When individuals, affected with phthisis unattended with fever, are attacked with diarrhœa, there always exists some particular cause, whose action has been directed to the intestinal canal, as we shall demonstrate when speaking of chronic phlogoses of the abdomen; for this point cannot be clearly defined, but by treating that disease *ex professo*. In the mean time, it must be observed, that excess of food, as well as an improper use of tonics, and especially of purgatives, contribute oftener towards it, than is generally imagined.

Now, why should we not apply to other apparatuses the physiological truths which we have just unfolded respecting colliquative diarrhœa? Why should not that vicious irritability, which long-continued pain establishes in the tissues, expose the mucous membrane of the trachea, that of the bladder, of the uterus, the cutaneous envelope, the serous membranes and the various parenchymata, particularly those which secrete, to that degeneration of the organic actions, which constitute phlogosis? And if this phlogosis commenced at a time, when the strength is exhausted and the elements of the fibre about to be dissolved, could it terminate otherwise than by the death of the part, or at least, by a state of torpor, which would very soon render it incapable of fulfilling its functions?

It will now be conceived that the most sensible and the most irritated tissues of the economy, will be the most frequently at-

* By pain not perceived, I mean the irritation itself of an inflamed focus considered in its connexions with particular organs. This irritation is in fact always transmitted to the heart, and to the cerebral centre; it keeps up the fever, even when the mind is not conscious of any pain, as during sleep; however, it always produces a state of uneasiness in the centre of relation, even although nothing indicates the presence of consciousness, and every uneasy sensation is pain. Upon the whole, I do not believe in the possibility of fever without an uneasy sensation accruing from an irritated focus: and when the patient is not conscious of any uneasiness, it is nevertheless perceived by the sensitive centre, as the necessity of breathing and many others, &c.

tacked by this consecutive phlogosis, which is as it were the propagation of that which destroys the principal viscus. Indeed, after diarrhœa, perspiration is the most frequent accessory symptom, and often anomalous red eruptions, boils, and small cutaneous collections accompany them. The gangrenous eschars upon the portions of the skin most injured by pressure, may be also explained by the same laws.*

The disorganizing phlogosis of the tracheal and laryngeal membrane, presents itself in the third place. I have not studied the determining causes very particularly, but it is presumeable, that the acrid and fetid matters of abscesses must efficaciously facilitate its action.

After the phlogosis of these three tissues, I am at a loss which to mention, to preserve their order of frequency. I have sometimes met with that of the bladder: it might have corresponded with previous repetitions of blennorrhagia; but how many particular causes, which cannot be detailed here, might also have equally concurred to produce it! That of the uterine surfaces would also have its determining agents, the action of which might often be easily proved.

The liver is often impaired, as is proved by those small collections of tubercular matter, which are frequently found in it. As to that yellow substance, with which its parenchyma is occasionally penetrated, known by the name of *fat*, phthisis does not occasion its formation as often as many authors had supposed. The diseases of the liver, in cases of phthisis, have appeared to me to be generally confined to an impairment of its larger absorbent fasciculi, which, like those of the mesentery, furnish tubercular matter: therefore, it must be observed that these organs, subjected to the influence of the digestive canal, are infinitely less excitable, and are not like it, exposed to the immediate action of external irritants.†

It does not appear to me, that the medullary tissue of the brain

* These are the organic sympathies, by the transmission of the irritation from a focus. I have since developed the theory, in my course of lectures and in my other works.

† This is the germ of the idea which I have unfolded subsequently, that is, that the tubercles of the mesentery and most of the degenerations of the liver are the effect of irritation of the internal surface of the digestive canal: this again is an organic sympathy.

is subject to alterations from any of the causes now under discussion.* As to its serous membrane, I think it much more liable to be affected. I have as often found it impaired in these diseases as the serous membrane of the abdomen. I have been led to this conclusion, most frequently, by the accumulation of the fluid which it exhales, and from its more or less gelatino-albuminous quality and resemblance to the exudation observed in the pectoral or abdominal serous membranes, which have been for some time modified by an inflammatory action. I have never found, in this delicate membrane, either the lardaceous degeneration or the dry exudation resembling melted fat congealed by cold, which sometimes serves as a medium of adhesion to the serous membranes of the inferior viscera: but I have often seen it coated with an exceedingly adhesive gelatinous layer, which rendered the separation of the contiguous surfaces very difficult.† Does not this state correspond with that to which we have just compared it, in speaking of the other serous membranes? Have not tubercular masses been found in the brain? And even if this change had never been observed there, might it not be positively asserted, that the laws of vitality and the plan of organization being the same in the tissues, whose functions are analogous, their diseases must act very nearly in the same manner?

In short, during the progress of suppurative phthisis, the serous membranes, with the exception of the pleura, much less readily become affected than the mucus and the skin.

The causes which may fix an inflammatory diathesis in the serous membrane of the abdomen, will be pointed out in the chapter on peritonitis. As to those, which act particularly upon the tunica arachnoidea, they appear to me to be infinitely more obscure. Perhaps, melancholy, anxiety, or previous excesses, which have produced excitement and mobility in the apparatus of sensation, would be sufficient to dispose that membrane to a very dangerous morbid irritability; perhaps, even pain might be placed amongst the causes.‡ But it appears to me anti-physiolo-

* I had not properly observed: for it is certain that the brain does not become affected differently from the other tissues: I mean to say, by a repetition of the irritation of the primitive focus.

† It was the effect of the secondary irritation of the arachnoid, which I here compare with its primitive irritation.

‡ This is the true explanation.

gical, to impute it solely to debility, not preceded by an increase of excitement. For why have not all those persons, who have died in a state of exhaustion, had an accumulation of serum in the encephalic cavity? Why do we often find in dropsical persons, no effusion in their arachnoid? No: debility never accumulates fluids in a surface compressed equally on every side. It requires force, and considerable force, to depress the cerebral mass, and to separate the lateral ventricles so as to be found, after death, distended and capable of containing several ounces of fluid.

This power is, most frequently, only an increased action of the exhalent vessels, which, at the same time, accumulates the fluid in the membrane, increases its thickness, and diminishes its transparency: in short, it is one of the grades of that great universal phenomenon, which we designate by the name of phlogosis.* In the case now under consideration, the arachnoiditis could not show itself externally by symptoms of irritation; but are they not found in the delirium which exists during the chronic state only? It is not announced by any fever or pain; but even if it added to the general irritation, would this trifling influence be distinguished amidst the turbulent disorder of the functions, and when all the attention is absorbed by the sufferings of a more sanguineous and more sensitive organ? It can then only be recognised like the most latent pleurisy, that is, by the consecutive effects of the material product of irritation, by the cerebral compression which successively produces stupor, imbecility, somnolency, and, in short, coma or final apoplexy.

It was natural to associate with the most decided case of constitutional phthisis, the symptoms which usually follow in its train, and which, in some respects, only appear by accident in the less defined grades of pulmonary phthisis. We have said that they were always in direct proportion to the excitement of the system. In recalling the facts, the details of which we have given, we have thought that this excitement itself was kept up by the pain of the phlogosed tissue, by the irritation of the ulcerated surfaces, and especially by the resorption of pus in a state of putrefaction. Will the remaining observations we have to

* This is the true theory of those supposed cerebral fevers, acute dropsies of the brain, &c.

relate in order to present an account of all the grades of spontaneous phthisis that have come under our own observation, confirm these assertions? We shall point out individuals whose lungs have been disorganized by tubercles which never produced ulceration in the parenchyma; consequently, the hectic fever which accompanied them can only be characterized as a *hectic from pain.* In studying the grades, the varieties of this fever, the phenomena always inseparable from the diminution of the central source of vital heat, we shall examine whether the accessory symptoms, and especially diarrhœa, which is the most common, will continue to correspond to the degree of irritation of the system.

CASE LVIII.—*Hæmoptysis followed by dry tubercular phthisis.*—Pelletier, twenty-four years of age, medium height, dusky chestnut-coloured hair; rather dull complexion; moderate and well-defined muscles; chest, without being deformed, rather narrow in proportion to the rest; habitually enjoyed a good state of health, and had never been subject to hæmorrhages, when, on the 28th of February, 1807, he was attacked with a cough, accompanied by a sanguineous expectoration, which recurred three successive days, at different hours and from three to four times each day. One of the accessions had lasted more than three hours; they had all been accompanied with coldness of the extremities, but with very little fever, as Pelletier continued his duty until the fourth day, when he entered one of my wards in the military hospital of Udine.

I observed a frequent pulse, heat of skin, and some muco-sanguineous expectorations.—The most rigid diet; mucilaginous drinks, and the application of a rubefacient cataplasm, calmed in two days this slight erythema, and during the eight succeeding days Pelletier appeared convalescent and had an appetite. His allowance of food was gradually increased.

On the sixteenth day, Pelletier was entirely without fever, when he suddenly experienced slight paroxysms of cough, which caused the discharge of a great quantity of arterial blood without pain. He had two of these attacks, during which he threw up more than ten ounces of blood. No acceleration or tenseness of pulse; the heat of skin natural.—Blister on the chest, ethereal frictions on that part: forty drops of laudanum in a julep, to be

taken during the day; a mustard pediluvium. Continuation of the hæmoptysis: the pulse and heat of skin increased during the night.*

The nexth day, the eighteenth, rice water, continuation of the internal and external irritants already pointed out, which it is the custom to apply under the names of *diffusible stimulants, antispasmodics, expansives, revulsives, derivatives,* &c. in hæmorrhagies which from the accompanying tranquillity of the circulation are regarded as passive.†

The nineteenth, the febrile action was extremely active, the pulse small, hard, and frequent, heat of skin ardent. Sanguineous expectoration very abundant: all the paroxysms of cough, (and they had increased,) caused the expectoration of a mouthful of blood.—Conserve of roses, with nitre and a quarter of a grain of opium, a preparation very much boasted of by Weicard, was given every hour; rubefacient frictions, pediluviums, &c. The pulse became harder in the evening: bled him from the arm. The night was not less terrible: the spitting of blood was constant. Agitation, anxiety. He never had been so ill.

The twentieth, alarmed at finding my patient in this dreadful state, I henceforth renounced Weicard's method, which I had, with the exception of bleeding, followed step by step. Ordered lemonade,‡ and a julep made of gum arabic and acidulated; abstinence from all food, solid or liquid; general lotions of tepid vinegar and water. The circulation became tranquil, the cough and spitting of blood less frequent; the amelioration continued the succeeding days. I permitted him to have animal broth, and a few days afterwards light soups and thickened milk.

The thirty-first, the pulse was without frequency, even in the evening: but there was still a tenseness, which gave me uneasiness. The patient said he was well: he seldom coughed and expectorated only mucus, similar to that of a catarrh, towards its termination. Appetite very good. Demulcent, vegetable, lac-

* If I had dared to bleed freely, particularly by leeches, the patient would have been saved: but I feared debility. Who is to blame?

† It is seen that I was influenced by the weight of authorities.

‡ The French sometimes add to their lemonade a few drops of the essential oil of citron.—Trans.

teous regimen; mucilaginous, farinaceous drinks, sometimes spiced; a blister was maintained. His strength was pretty good. I expected much from the warm weather, (it was the 30th of March.)

The fifth of April, the pulse rather increased. The succeeding days I observed that Pelletier began to emaciate. He coughed rather more frequently, and but seldom expectorated. He was inconvenienced by a sensation of heat, which did not increase much, but never entirely left him. Diminution of food. Mucilaginous and gummy medicaments. The succeeding days, the skin resumed its freshness and the face became cheerful. But this amelioration was of short duration, and although the same plan was constantly persevered in, obscure hectic reäppeared in five or six days and continued its destructive progress.

The thirteenth of April, the resonance of chest began to lessen. An issue in the left arm. The succeeding days, diminution of hectic, slight tendency to nasal hæmorrhages. Acidulated mucilages.

The twenty-eighth, accession of fever, which recurred as a tertian. The chest appeared to suffer from it. Six drachms of cinchona prevented its return.*

The twenty-fourth of May, Pelletier gave some hopes of recovery; the irregular returns of hectic heat had become less frequent, a rather large allowance of food did not excite fever; he now appeared to feel the stimulus of atmospheric heat; the pulse increased, the skin became dry and heated; the chest laboured and was excessively painful on the left side. I reduced his diet to milk, and two ounces of bread only, morning and evening. He was at first refreshed and tranquillized: but slight hectic heat very soon reäppeared. He became subject to pretty violent paroxysms of coughing, followed by white and granulated expectorations. He did not feel ill, he had hopes: but the emaciation increased. Soup, rice, mild anodynes at night.

The twenty-third of June, the heat of skin was considerable at night. Pelletier became subject to bleedings from the nose and to small red pimples on the chest: he felt feeble. Recognising here the progress of an inflammatory diathesis, which the extreme heat of the season had a tendency to augment, I suppressed the

* The fever was arrested by the cinchona, but the irritation which caused it was not destroyed: it was but changed in its nature.

milk and confined him to soup, to farinaceous articles prepared with water, and to acidulated mucilaginous drinks.* He became more calm, and slowly declined: he still expectorated little and but seldom.

The fourteenth of July, Pelletier, after having been very much inconvenienced by the heat, derived so much advantage from it, that he no longer suffered in the least, and began to recover flesh and colour. Placing but little confidence in this amelioration, as it appeared to me probable that the disease persisted only on account of the presence of tubercles, I continued the last treatment.

The eight of August, the patient said, that for several days, the nocturnal cough had greatly increased: he had also fallen away very much. The heat at night revived, (the temperature of the atmosphere was from twenty-nine to thirty-two degrees, Reaum.) I diminished the quantity of food, which the appetite of the patient had compelled me to increase. Acidulated mucilaginous drinks.

The fourteenth, he complained that he could no longer breathe: strength and appetite failed him.—Vinous tonics, opium.

The fifteenth, he suddenly expired, after five months and a half illness.

Autopsy.—*Habitude.* Considerable marasmus, but not in the last degree; no œdema. *Thorax.* The right lobe strongly adhering, entirely *hepatized* and filled with tubercles, almost all reduced to a white pulp, but very few emptied. The greater number of them did not exceed a filbert in size: but at one point, several had united to form a large one, which was not excavated throughout its thickness, although almost transformed into a white pulp. The left lobe was not adherent, was three-fourths *hepatized*, and had scarcely any but miliary tubercles. *Heart.* The right auricle dilated by a red coagulum. *Abdomen.* Stomach sound: some small ulcerated points, resembling aphthæ, in the mucous membrane of the colon, but no redness. The mesenteric glands very voluminous, and most of them reduced to tubercular matter in the centre.†

* I should now from the commencement adopt this regimen, and I should join with it copious bleedings.

† A proof of inflammation in the small intestines, to which I did not pay sufficient attention.

Observations.—This case is extremely interesting, because the disease may be studied from its commencement to its termination, and will furnish materials for useful reflections. At first a moderate action of the pulse was observed to produce a certain degree of debility of the system, after losses of blood, equivalent to a large bleeding. This irritation yielded readily to diet and antiphlogistic remedies: but at the moment the patient was commencing to gain strength, a great quantity of blood was again ejected by the simple action of the capillary system of the lungs, without the concurrence of any febrile action.

The coolness of the skin, its little discolouration, the contractedness and even feebleness of the pulse, the previous loss of blood, all seemed to indicate, that the use of revulsives and antispasmodics, would be of more service to the patient, than a continuation of the first treatment. I embraced that opinion; I endeavoured to excite the organic action of the vessels of the surface. I succeeded; in a few hours, the general capillary circulation was very active; but the hæmoptysis increased in consequence of it, and the symptoms of inflammation began to be combined with the hæmorrhagic phenomena.

Instantly alarmed at this destructive exacerbation, which I attributed rather to the remedies than to the disease,* I returned instantly to the cooling and sedative treatment, and the relief was so immediate, as to demonstrate in the most positive manner, that this was the only suitable method.

This experiment, which was conscientiously dictated, must have been often repeated in diseases of the same nature as that of Pelletier, because the most accredited authors of the present day recommend stimulants more frequently than sedatives. Thus I required a great number of facts, to make me bold enough to shake off the yoke of their authority and be accountable for it to an inward feeling which spoke in favour of cooling medicines in a number of cases, in which it appeared to me, that my guides would have acted directly the opposite.

I would not be so bold as to advance, that perseverance in the treatment, which I had begun, from the moment the patient entered the hospital, would have prevented the phlogosis which quickly followed the second hæmorrhage, and saved the lungs

* I was certainly in the right; but the authorities!..... the authorities!

from tubercles; but the amelioration which was obtained by again returning to it, the success which has attended these same means in a great many similar cases, the custom which I have pursued of alleviating by a strict diet and by sedative medicines, men who have become victims to chronic phlegmasiæ, induce me to believe, that if I had continued to stimulate, Pelletier, instead of perishing with dry phthisis almost without fever, would have been consumed by a violent hectic, which would have destroyed him three or four months sooner. Perhaps, even the excitation would have rendered the tubercles more humid, hastened their destruction, and excavated in the lungs eroding ulcers. But this second proposition appears to me much less probable than the first. The following fact will show a greatly neglected tubercular diathesis, which did not produce ulcerations; but the prodigious extension which it attained, will prove that irritants are not always the best means of destroying lymphatic engorgements.

CASE LIX.—*Dry tubercular phthisis with peritonitis.*—A soldier, named Dubreuil, twenty-two years of age, died, after being two days in the hospital of Udine, in April, 1807, with phthisis, which I could have wished to have had a longer time to observe. But very little information could be obtained from him. For three years he had had frequent returns of severe general pain in the chest, for which he had not requested medical advice. His repugnance to hospitals induced him to resume his duty as soon as there was any interval in his suffering. At length not being able to resist any longer, he had himself carried to the hospital, where I made the following remarks upon his case.

He was in a state of semi-marasmus, and consumed by active hectic fever. The chest did not give the least sound on percussion: the whole body was painful on pressure; the patient was constantly agitated and restless. An incessant cough without expectoration, anxious countenance, clammy sweat, perpetual sighing, slight indications of alienation of mind, announced, from the moment of his arrival, that his end was fast approaching. His death took place the next day but one after his entrance, in violent agony: or rather the two days he spent in my wards were passed in an uninterrupted agony.

Autopsy.—It presented a body in a state of semi-marasmus,

the lungs of which were entirely hepatized and filled with dry tubercles of various sizes: general adhesion of the pleuræ by thick, reddish, and well-organized productions: universal peritonitis, with a lardaceous exudation, adhesion and sphacelus of the serous membrane. The mucous membrane was every where in good condition.

Observations.—Although this soldier appeared at the hospital with a tolerably active fever, it is certain that he did not experience habitually much febrile excitement, as he was able until the day before his death to dispense with entering that establishment. It may also be observed, that he was not affected with diarrhœa, and that the accidental symptoms did not contribute much to his suffering.

He said that he had been ill two years, and yet fever had contributed very little to the development of tubercles. We may therefore conclude that he had a very considerable predisposition to that species of affection.

The state of excitement in which the patient presented himself, the red induration of the lungs, and the peritonitis with sphacelus, denoted a secondary sanguine phlogosis, excited no doubt by the tubercles, and exasperated by the use of stimulants; this contributes to demonstrate the necessity of a therapeutic method, which will proportion the excitants to the susceptibility, and especially to the aptitude of the organs to assimilation. In fact, nature is always the same in her operations. Even supposing that the lymphatic fasciculi of the lungs could have found within themselves, and in their innate predisposition,* the first impulse which directed them towards the tubercular condition, the phlogosis ought to have accelerated that degeneration, since it can produce it, and does in itself produce it under a variety of circumstances.

Therefore, the irritation may commence either in the lymphatic or sanguine system, in turn,† and they may mutually exasperate each other to the complete destruction of the apparatus in which they may be seated. This truth‡ appears to me so highly im-

* And it is truly a supposition. † According to the above supposition.

‡ It is very true that the sanguine irritation may have the choice: it has not been sufficiently demonstrated, at least for me, that the lymphatic can precede it *in the viscera.*

portant to the theory of the treatment, that I do not hesitate to offer another demonstration of it by a detailed history of a third case of constitutional phthisis without ulceration.

CASE LX.—*Constitutional phthisis without ulceration.*—Maurice, aged twenty-seven years, brown hair, slender, flabby, health delicate, entered the hospital at Udine on the 12th of January, 1807, having been suffering for one hundred and thirty-eight days under an affection of the chest, which, at first very trifling, had gradually increased without the patient being able to recollect his having had a severe cold, or of having committed any excess.* He coughed, expectorated with facility a quantity of mucous matter, and did not complain of any pain in the chest.

This disease, which presented the mild appearance of a simple catarrh, was treated as such with demulcent pectorals, and he was allowed almost as much food as his appetite demanded. But at the end of ten or twelve days, the increased heat of skin, the frequency, hardness, and fulness of pulse, and bloody expectorations, particularly directed my attention to this patient. These symptoms appeared to me to indicate the progress of a chronic phlogosis of the parenchyma. The absence of the symptoms which belong to pleurisy, the certainty that the pectoral irritation had not been kept up by the continued action of cold, finally the aspect of the patient did not permit me any longer to doubt that there existed a powerful propensity in him to the formation of tubercles, and from that moment I foresaw the fatal issue of the disease. I hastened, however, to oppose to it the means which appeared to me the most efficacious in appeasing the predominating sanguine phlogosis.—A mucilaginous and farinaceous diet, demulcent drinks, blisters on the chest, and afterwards an issue.

But whether the disease was already superior to the remedies, whether Maurice in secret satisfied his appetite, at that time very great, and which is very probable from his indocility and from some attacks of diarrhœa; the frequency and hardness of pulse, heat of skin and redness of the cheeks augmented every day, so that on the one hundred and eighty-third day, the fever was very

* All that does not exclude the preëxistence of sanguine irritation. (*See the Examination of Medical Doctrines* for all that relates to this question.)

active; the cough constant; expectoration abundant, opaque, at times, bloody; and emaciation began to make alarming progress.

The one hundred and ninety-fifth day, the patient began to be anxious, he could no longer expectorate, his cough tormented him, the want of sleep produced despair. Opium was his only consolation. The violence of the fever remained nearly the same, notwithstanding the general extenuation. It ceased but with life, on the one hundred and ninety-eighth day of the disease. His death was easy.

Autopsy.—*Habitude.* Complete marasmus, universal discolouration. *Thorax.* Very renitent, red induration of nearly the entire right lobe. It contained several tubercles or rather collections of tubercular matter, of an angular and irregular form. In some, small cavities could be observed, as if produced by the evacuation of tubercular matter, which appeared to be rather dry and granular, than pulpy or diffluent. No ulcer having the parenchyma for its parietes. The left lobe very much engorged and in a state of semi-induration, did not present any tubercles except at the division of its bronchia.* The bronchial glands and those of the mediastinum, enormously swollen, scirrhous and tubercular in their centre, formed on the dorsal column a large tumour, which trespassed a little on the right cavity. The tissue interposed between them was not impaired. *Heart.* Natural. *Abdomen.* The mesenteric glands in the same state as the bronchial. Some insulated red spots in the mucous membrane of the stomach and in that of the colon.

Observations.—It appears that the first tubercular germ developed itself in the mediastinum and in the glands which surround the principal bronchial ramifications,† and that the parenchyma was not involved until long after. The period when it was encroached upon, by the degeneration of the white fasciculi, ought to correspond with the irruption of the inflammatory diathesis. It may also be here observed, that the external stimulants, which concurred with the tubercles, to excite that violent hectic from pain, which hastened the patient's death, had already determined

* It is thus that tubercles spring up behind the inflamed region of the mucous membrane of the bronchiæ.—*(See the Examination.)*

† In consequence of the bronchial phlegmasia, which is not here mentioned, but which, since that, I have always found in cases analogous to this, whenever I have sought for it.

a secondary phlogosis of the mucous membrane of the intestines, which had not time to affect its disorganization and occasion colliquative diarrhœa.

This patient, like many others, has shown that expectoration sometimes is of little consequence in phthisis. It depends on the state of the mucous secretion, which varies in every constitution. Frequently, a patient who has tubercles, does not begin to expectorate, until the moment when these bodies fall into a state of putrescency; he then ejects a round and granulated substance, and afterwards purulent matter. Others, whose mucous membrane is more humid or more irritable, never experience the slightest paroxysms of cough, without a profuse expectoration of mucus.* In these last, the mucus sometimes becomes so opaque and fetid, in proportion as the lungs become excited and phlogosed, that it resembles pus, and when, after death, its source is sought for, we are surprised to find a lung filled with perfect tubercles, without any abscess. Here the mucous secretion went on during a length of time, with sufficient facility to give rise to the presumption, upon seeing the progress of the fever, that it would soon change into true pus; perhaps even towards the last, it had its characteristics. Nevertheless, when the irritation had reached its extreme height, this secretion became completely suppressed, and the autopsy demonstrated that the tubercles had not been the source of the expectoration.

Hitherto we have remarked that dry tubercular phthises were very slowly developed. In the first place, the patients suffered a long time from the chest, before the disease appeared to them of sufficient importance to require energetic treatment; at last, the multiplication of the tubercles roused the sanguineous system, and hectic fever came to close the scene.† We can conceive after that, the possibility of a grade of dry phthisis still less de-

* See Allard, Case 19. From the first invasion of the pleuritic irritation, he expectorated profusely, and in all the accidental returns of catarrh which he afterwards experienced, the same phenomenon took place. This peculiarity was owing to the very great excitability of the mucous glands: for the cavity which afterwards supplied the expectoration, did not exist when the disease first made its appearance.

† See all the preceding notes, and particularly the *Examination*, &c. from whence it results, that the development of the pulmonary irritation does not prove the preëxistence of tubercles.

fined, and consequently more chronic, in which the patient might reach the end of his career, without experiencing the pain always attendant upon a hectic of any intensity.

The greater number of scrofulous phthises must resemble this variety. In my civil and private practice, I have met with many young persons, who seemed to me to be wasting away from the effect of a similar disorganization: but as I had it not in my power to follow all the details of these diseases, and still less to confirm or rectify my opinion by examinations of the bodies, I shall be satisfied with giving one of the examples which I obtained in the military hospitals. This grade is so much the more worthy of remark, inasmuch as it in a great many respects resembles the latent and chronic pleurisy, the diagnosis of which has already appeared so difficult.

CASE LXI.—*Constitutional phthisis without fever or ulceration.*—Francis de Leucotte, twenty-five years of age, tall, small muscles, regular frame, very expanded chest, flaxen hair, dingy white skin, flabby flesh, was born amongst the poorest class of society, and had never been sufficiently nourished during his childhood. Some time before being drawn by the conscription, he experienced a slow and continued fever, with an affection of the chest, since which his health had been always vacillating; he, however, performed his duty, although with great difficulty, for more than four years. Having been obliged to sleep in the open air, during a month, on straw, frequently damp, his chest became more affected and he continued to cough. A fall in the water rendered his cough almost incessant, and Leucotte was distressed by a sharp and permanent pain in the xyphoid cartilage and in the whole of the left side of the chest. It was in this state that he entered the hospital of Nimèguen, in which he had been about one month, when I took the direction of it, Germinal, an. 13. The symptoms had changed but little since he entered it. The nocturnal cough did not permit him any rest; he did not expectorate. The pulse was small and frequent. Towards evening, a red spot could be observed on each cheek, which contrasted strongly with the pale complexion of the patient, and the pulse increased and became more tense. Emaciation had already made some progress.

I succeeded, with the assistance of blisters, demulcents, ano-

dynes, and especially with a very light vegetable diet, in quieting the cough and in procuring him pretty comfortable nights: I did not aspire to any thing more.

During the month which Leucotte still lived, he was reduced almost to a skeleton, although his pulse could hardly be considered frequent during the day, and he had neither colliquative sweats, diarrhœa, nor expectorations.

He no longer suffered; every day he said that he was better than on the preceding. The six or seven last days he could not leave his bed, and began to expectorate occasionally puriform matter, mixed with blackish clots. The day of his death, he complained of being no longer able to breathe. His dying moments were accompanied with a dull rattling in the throat, which lasted from five to six hours.

Autopsy.—*Habitude.* Complete marasmus, without the least infiltration. *Head.* Nothing remarkable. *Thorax.* Both cavities containing a great quantity of lemon-coloured serosity: the parenchymata were, however, still very voluminous, but the pectoral cavity was extremely large. The right lung had no adhesions, and its serous membrane did not present the least trace of inflammation; but its parenchyma was indurated almost throughout, and filled with solid tubercles, some scirrhous and of a lardaceous appearance, and others already softened, but none were empty. On the left side the pleura adhered in many places by a substance, which, although organized, had still the character of fibrin. The cells and intervals between the adhesions were filled with serous effusion. The parenchyma was much more degenerated than that of the opposite side. The tubercles in it were so numerous that they formed at least three-fourths of its mass; the remainder was indurated and red. It contained some tubercles as large as a hen's egg. These were formed of a dry, friable, cheese-like substance: the smaller ones were rather scirrhous and lardaceous; I found some of the smallest in a white pulpy state and already hollowed in the centre, but they were few in number. *Abdomen.* There was a very copious serous effusion in the peritoneum. The mesenteric glands were engorged, and their centre contained a nucleus of tubercular matter. The liver and spleen were yellow, and presented under their serous membranes some white spots, which I recognised as so many small depositions of tubercular matter. The mucous mem-

brane of the digestive passages did not vary from its natural and physiological state.*

Observations.—The progress of this disease, proves how regular and constant nature is in all her proceedings. It is always by a gradual decay, with frequency of pulse and considerable discolouration of skin, that she informs us that the pulmonary parenchyma is insensibly compressed and rendered less permeable to air. In comparing this case, and in general all the dry constitutional phthises, with tubercular catarrhs and chronic pleurisies, we see that the more passive the sanguine system is in that obliteration, and the longer it is in its operations, the less active is the hectic from pain, and the more inconsiderable the suffering and oppression. Of all the causes of obliteration which we have viewed, we have found none more analogous to the one now under consideration, than the pleurisy to which we have given the name of *the most latent*, p. 216. Like dry tubercular phthisis, it has very obscure commencements; like it, it continues to prolong itself for several years, and when one or the other declare themselves with certainty, the evil is inaccessible to all remedies. There must, however, exist differences between these two diseases; in establishing them we shall have resumed the characters of dry phthisis.

The symptoms of dry phthisis which has as yet made little progress, are a dry cough, or one followed by mucous expectorations, frequent pulse without heat of skin, unless the patient has been unusually stimulated, and some pain in one or both sides of the chest. Latent pleurisy in the same degree, presents all these symptoms; but the remembrance of a former casual pain in the side, of a fall, or of an effort, may cause it to be suspected. What renders it the more probable, is that the accidental circumstances and even the frequency of pulse completely disappear by rest, abstinence, &c. whilst they are continued in phthisis. The percussion is alike equivocal in both cases.†

* Here again is a point which I am compelled to deny. The redness might have disappeared from the digestive canal, as in some portions of the lungs: but positive traces of inflammation, which were then unknown to me, ought to have been found in its internal membrane.

† In the chronic pneumonia, (phthisis,) now in question, the dull sound commences in the superior portion; it is generally directly the contrary in chronic pleurisy.

Confirmed dry phthisis keeps up a hectic with moderate heat, which even in the evening exacerbations is not considerable. Then, when the redness of the middle of the cheeks occurs, it forms a contrast with the general paleness, which constitutes one of the principal characteristics of this phthisis. Emaciation increases, the patient complains of an undefinable sensation of weakness; the chest ceases to be sonorous, frequently on both sides. Chronic pleurisy of long standing never produces hectic fever of any activity, without creating a sensation of compression and a threatening of suffocation, to be dreaded during the night: but then the complexion, instead of becoming pale, assumes a bluish hue, as if complicated with aneurism of the heart, and death commonly anticipates the last degree of emaciation. The chest on percussion emits a perfectly obtuse sound, from the side most affected. The pain seems seated in the muscles, which renders it difficult to bear percussion, and even pressure of the parietes.

When the hectic fever in a patient with dry phthisis becomes extremely rapid, it is because the sanguine phlogosis has at last developed itself; he is threatened with a fatal red induration or with suppuration; his disease becomes like ordinary phthisis. When the discolouration and the emaciation make great progress in pleuritic patients, dry tubercles of the parenchyma ought to be suspected. The violence of the phlogosis is the same in both cases.

After having pointed out by a few examples the grades of phthisis which have hitherto appeared to me to be the most prominent, after having arranged them, like so many chiefs, around whom an innumerable variety of individuals rally, I ought to present in a general summary an abridged history of all those which I have observed, and the full details of which could not be admitted into this work.

CHAPTER V.

General History of Lymphatic Inflammations of the Lungs.

Etiology.

As all sanguine inflammations of the lungs may, by their prolongation, degenerate into lymphatic phlogosis, or to speak more correctly, may communicate to the lymphatic fasciculi a mode of alteration which renders them susceptible of keeping up in their turn the irritation of the red capillary vessels, it is obvious that all the causes of sanguine, become also those of lymphatic phlogosis. It would therefore be useless to retrace the first causes of pulmonary inflammation, which have been pointed out in the etiology of catarrh, peripneumony, and pleurisy: but it will be well to recall to mind that all phthises which are not absolutely owing to a vitiation of the constitution, are attributable to the continued action of these same causes, and that the greater this vitiation, the less time it requires for transforming a mild irritation of the pulmonary organ into a genuine phthisis.

Thus the often-renewed effects of cold, the repetition of febrile chills, the permanent use of stimulating food, drinks, and medicines, are sufficient to keep up the sanguine phlogosis of catarrhs; of that which sometimes continues after peripneumonia, and of that which accompanies pleurisy. For the same reason, all professions, trades, and excesses, either physical or moral, in which we have recognised the bad effects of stimulating the respiratory organ, should be ranked with the causes which perpetuate irritations of the chest and dispose that organ to lymphatic phlogosis and to tubercles. Finally, the same rank should be assigned to the stimulating and perturbating means which are often prematurely used to abate irritations of the chest succeeding to the different diseases of other organs, with the very praiseworthy intention of quickly restoring the strength and of hastening, by an abundance of food, the return of the *embonpoint* and natural appearance of the individual.

All these causes may be considered at the same time as *predisposing* and as *determining*, when the individual has a large chest, a firm tissue, and is proportionably developed in size. But

in the phthises of persons of irregular and contracted form, and who are relaxed, excitable, and very irritable, these causes appear to be only *determining*. Indeed, it is so common to see phthisis declare itself in individuals of such constitution, notwithstanding every hygienic precaution, that we are almost tempted to admit as a principle that *their pulmonary lymphatic fasciculi alter spontaneously, or at least by the exclusive effect of those stimulants, to which every man is inevitably subjected in the most quiet and uniform mode of life.*

But this assertion can be true only as regards northern or temperate climates; for if we endeavour to determine which it is among the ordinary stimulants to the lungs that these kind of temperaments ought the most to dread, we find that it is cold: we, in fact, observe that phthisis in the individuals we are alluding to most frequently appears in winter, and that the least cold weather occasions cough. We are the more convinced of this upon observing that cold renders them phthisical, although they have laid aside every other irritating agent, whilst they can bear the action of almost all these agents with impunity when they resort to a warm climate.

Does the predisposition to pulmonary phthisis, then, consist in the facility with which the vital action may be suspended in the capillary vessels of the skin, and transferred to those of the mucous membrane of the bronchia, which latter always supplies in some degree the exhalent and depurating function of the former? How can this proposition be strictly admitted, when we observe individuals, who, during a long course of life, have colds almost constantly, at least during the cold seasons, and in whom the lungs perform the office of an *exutory*, without the morbific action ever being propagated from the mucous glands to the parenchyma and lymphatic fasciculi? Let us then carefully examine these constitutions in order to discover in what they differ from those which we, in common with physicians of every age and country, designate as the most predisposed to phthisis.

Individuals subject to an habitual cough and to a copious mucous expectoration, are in general well enough developed in depth, and often have broad chests. Occasionally, they have also considerable *embonpoint;* but this attribute is less constant than the two others. It is only in a similar organization that colds may be repeated with impunity for a length of time; yet we

frequently see these kinds of temperaments become at last victims to phthisis, which they had for a long while set at defiance. I have observed this myself; it is what is meant by authors when they tell us that asthma frequently degenerates into tubercular phthisis.*

But if we look upon a predisposition to catarrh and to copious expectoration as only a vitiated action of the mucous cryptæ, or, to make use of the usual language, as a relaxation of the mucous membrane of the lungs, should we not be somewhat in error? I have often studied these phlegmatic and catarrhal individuals not only at an age when the body has acquired its full development, but also in the different periods of childhood. I have almost invariably remarked that during the whole course of their lives they have had quick respiration, that they soon lose their breath in walking, and particularly in ascending any place; that they shun small rooms; that they are incommoded in heated atmospheres and in large assemblies; that they cough and expectorate more profusely after having been exposed to the causes which hasten the circulation, and accumulate the blood into the pulmonary organ; finally, that they are subject to palpitations of the heart.

These considerations induce me to think, that they have a great resemblance to the individuals I have pointed out as having a varico-aneurismatic predisposition of the centre of circulation. I am, however, far from affirming that the catarrhal habit of body cannot be owing to a different cause. Individual varieties are infinite. There are men imminently aneurismatic, whose faces, after the least exertion, assume a violet hue, the chest heaves, and who during the most violent paroxysms of coughing never expectorate: no doubt in such persons the mucous secretories are but slightly developed; but this idiosyncrasy is not common.

* Among the persons whom I have here designated, are included those with hypertrophy of the heart, several aneurismatic individuals, and those with considerable obesity. In all these individuals, the stagnation of blood in the lungs produces dyspnœa, cough, and mucous expectoration, and is the cause of cold more easily occasioning catarrh. Those among them whose lymphatic system is vigorous, escape phthisis, or yield to it only in their old age, and their lungs become blackish whilst disorganizing: it is the *phthisis with melanosis* of the anatomico-pathologists. Those whose lymphatics are more irritable contract tubercles much sooner; others are carried off by a pneumonia more inflammatory than lymphatic, and others again become decidedly aneurismatic.

The catarrhal predisposition is not more common in individuals in whom respiration is free, who are *long-winded*, and whose chests are of sufficient capacity to give free play to the lungs. The most frequent cause of the habitual loss of breath, and, at the same time, of the predisposition to catarrhs with profuse expectorations, is the facility with which the blood accumulates in the ramifications of the pulmonary vein, that is to say, an extensive defect of the whole pulmonary venous system. I have recognised it in several subjects; 1st, by the dilatation of the left auricle, and of the pulmonary vein; 2d, by the development of the capillaries of the lungs, and the great quantity of blood which gushes from them on being cut; 3d, in observing that this predisposition coïncided with the habitual loss of breath, and copious expectoration, without aneurism of the heart, as well as with that aneurism, and with dilatation of the vena cava; 4th, in convincing myself that rapid inflammations, which accumulate most blood in the chest, never leave that degree of dilatation in the bodies of those who have not been subjected to *shortness of breath*.

If we are but little alarmed at seeing a stout man, with a large chest, cough and expectorate constantly, we are far from being easy respecting the fate of a thin, irritable individual, who has grown rapidly, and complains of the same indisposition; and the event but too often justifies our sad presentiments. The same cause, cold, will act upon one in the same manner as upon the other; the same injury, an impairment in the secretion of mucus, will result to both; but, in the first, the morbid action would in every instance remain confined to the tissue which first received it, whilst in the second, it will sometimes extend itself, in a very short time, to the white fasciculi, resulting from the union of the absorbent radicles.

Can this difference solely arise from the narrowness of the chest impeding the circulation of the lymphatic capillary vessels, which are known to be the least energetic of the living body? I think not, and for the following reasons. Notwithstanding the great development of the cavity which contains them, varico-aneurismatic lungs are not less compressed than those organs in individuals with contracted chests. We are convinced of this by the constant loss of breath in persons afflicted with this defect of organization, and especially by the close adhesions which are found,

after their death, between the surfaces of the pleuræ. These persons, however, are not very subject to tubercles. Very fat individuals have the lungs always in a state of plethora, which makes exercise painful, and very often causes them to appear out of breath: of all the temperaments, however, these are the least subject to pulmonary phthisis. Repeated pregnancies—voluminous tumours in the abdomen, which have rendered respiration painful for many years—constant exertions, &c. do not easily produce true phthisis, unless the individuals are predisposed to it by a defect in their primitive organization. Chronic pleurisy provokes phthisis less by simple compression, than by the sympathetic communication of inflammatory irritation, since the most actively stimulated pleuritic individuals are most liable to be affected with tubercles. On the other hand I have seen phthisis develope itself with as much quickness in relaxed and excitable individuals, although their chests were sufficiently ample in proportion to their size, as in those of the same constitutions, who had that cavity visibly *contracted.*

But if the compression of the lungs be not the principal cause of the degeneration of the lymphatic fasciculi, what is it then? Does it consist in a preëxistent tubercular germ, common to some persons having the delicate constitutions of which we are speaking?

This opinion, which appears to be that of the greater number of authors, will fall of itself, when thoroughly examined. Have we not pointed out, in a great many instances, that individuals predisposed to tubercles, had not contracted them until after an accidental inflammation? Is it not the same fact, although considered under a different point of view, which Doctor Portal has announced, in saying, that constitutional phthisis occurred at every period of life? Is it still necessary to remind the reader that we have proved sanguine phlogoses to be the cause of tubercles in all constitutions, and that the only difference consisted in the time necessary for their development?

If the preëxisting germ be still less admissible, as a cause of phthisis, than the compression of the lungs, there only remains debility, or, perhaps, extreme irritability of the white lymphatic fasciculi, inseparable from a flabby and relaxed habit of body, which can be accused of essentially constituting the predisposition to

phthisis.* The comparison of all the chronic phlegmasiæ will furnish abundant proofs of this truth; but we are too much limited in this work to attempt it here; some facts will be found in the article on chronic peritonitis, which will, however, support this assertion.

Let us then conclude this discussion, by the following summary, which is but a development of the species of axiom, which we have previously proposed: it will contain all the etiological theory of phthisis.

In individuals of a soft and relaxed tissue, the perspiratory function of the cutaneous system is easily paralyzed or suspended by the impression of external cold, and by all the causes which produce rigors. The increased organic action of the lungs,† in consequence of this torpor of the vessels of the surface, is easily communicated to the lymphatic fasciculi, and transforms them into tubercular masses. The irritations of the lungs proceeding from any other cause, may have the same result when it is prolonged or frequently renewed. The strongest individuals withstand any kind of inflammation and irritation whatever, of the chest, a much longer time, without incurring the danger of tubercles; but there is no constitution which can be supposed to be exempted from them when the stimulating cause is constantly in action, unless the rapid progress of sanguineous induration, prevents by death, the lymphatic alteration.

If a portrait of those persons, who are the most exposed to tubercles, be now desired, we would point out to the observer of mankind, all the individuals of the human species who have a *delicate form and soft skin*, (these two characteristics are the only invariable ones.) Those with flaxen hair, who are thus formed, will be more liable to it than those with brown, who are in other respects similar. The more excitable these individuals are, and the brighter their complexion, with an active, expanded, and frequent pulse, the more will they have to fear, and the less the time that will be required to reach the last degree of the disease. A contracted chest ought to add to their

* I should have come to this strict conclusion before, if I had not been influenced by the theories which I had collected from classical authors.

† At first in the sanguineous and nervous capillaries, which often produce hæmoptysis at the commencement of pulmonary irritation.

fears, and increase their precautions in proportion as they may be sanguine and irritable: but a favourable development of that cavity does not authorize them to brave the causes of pulmonary irritation. Finally, those amongst them, who may possess in the least degree, nervous and sanguine excitability, and who may have been scrofulous in their childhood, would have, perhaps, less reason to fear external irritants which tend to establish a state of plethora, than others; but they will be exposed to dry tubercles, and to the most chronic and the most latent phthisis.

DEVELOPMENT OF PULMONARY PHTHISIS.

The phthisis whose development is the most evident, is accidental phthisis; we shall therefore here resume the order in which we have ranged the respective histories of pulmonary phthisis.

I. As every pulmonary inflammation may degenerate into phthisis, as soon as a catarrh, a peripneumony, or a pleurisy shall continue beyond the ordinary term of acute inflammations, from fourteen to twenty days, with symptoms of violent reäction, it will be necessary to think less of abscesses of the lungs, which rarely happen, than of tubercles which are of common occurrence. We derive the evidences which lead to a belief, that the inflammation is kept up by this latter cause, from the examination of the person and from the recollection of the diseases to which he had been subject.

1st. *From the examination of the individual.*—The pulse continues hard and expanded at a period when the inflammatory impulse should have terminated; there is no resolutive expectoration, or that which does take place, gives no relief to the chest. The cheeks continue to be of a deep red, bordering on purple, although the remainder of the body and even the other parts of the face, have become pale and assumed the appearance of white wax. The febrile action is extremely rapid, and so violent, that the exacerbations at night are scarcely perceptible; sometimes it is suspended during some hours, then it recommences with renewed activity; the heat of the skin is extreme; there is great restlessness and dyspnœa; the patient is constantly under the fear of suffocation; the colour of the cheeks assumes a violet hue; emaciation increases suddenly; in short, every thing announces a severe injury of the organs of respiration and the

presence of a troublesome irritant in its tissue. The temperament of the patient sometimes strengthens the belief of the existence of tubercles. Information can frequently be drawn from the second source, which we would recommend to be carefully examined, that is to say—

2d. *The antecedent diseases.*—The individual has long suffered with a catarrhal affection; he has experienced many attacks. His chest has been constantly irritated, either by his profession or by his course of life.

Such is pulmonary phthisis in its highest degree: it may be called *phthisical or tubercular pneumonia,* when the disease first appears with symptoms of violent inflammation, and *pneumonic phthisis,* in cases where the tubercles, fomented for a long time by a trifling irritation, have preceded the violent irritation which completed the destruction of the organ. This case appears to me more common than the first.

II. The acute and inflammatory phthisis we have just described always supposes the concurrence of two things: 1st, a predisposition in the lymphatic fasciculi to develope themselves suddenly and very promptly:* 2d, a considerable fulness of the sanguineous system. I do not know that this coïncidence is common, but to me it has appeared rare; perhaps, in most cases, a long continuation of irritation is required to induce it; but this irritation must be moderate, not to impair the strength and retard nutrition, which would render the inflammatory attack impossible, and could only produce a very moderate hectic from pain, and such as we constantly observe in naturally strong and sanguineous individuals attacked with prolonged pulmonary phlegmasia, even though they should have still retained their strength. In fact, whether such a phlogosis has been violent in its commencement, or the cause which kept it up never been sufficiently powerful to carry it to its extreme degree of intensity, it is positive that, in most cases, tubercles do not easily form in the centre of a phlogosed tissue;

* Tubercles always make their first appearance, after catarrhs, in the most inflamed part, and this is the upper portion of the lobe most affected. They afterwards appear in the corresponding portion of the opposite lobe, and from thence they progress with the phlogosis into the remainder of the parenchyma. When following pneumonia and pleurisy, of the small and inferior regions, they commence in those parts: (See *Examination of Medical Doctrines,*) but they never form simultaneously throughout the whole pulmonary system.

that they slowly progress, and that they do not greatly increase: such is tubercular catarrh.*

Their development generally shows itself in the following manner: a person, who, from his organization, is not predisposed to phthisis pulmonalis, coughs for a length of time. The fine appearance of the complexion, *embonpoint* and figure, the absence of a continued hectic fever, and of a fixed, superficial, or deep-seated pain in the thorax, show that the disease is purely catarrhal.† The good effect of sedatives, regimen, and repose, lead to a belief that the evil is not very serious, and that if the phlogosis were not continually renewed by cold, by the mode of living, &c. it would terminate favourably. Suddenly, the pulse is accelerated, the complexion fades, the skin becomes discoloured, the strength exhausted, and the *embonpoint* quickly diminishes.‡ These symptoms announce the presence of tubercles, as yet dry. Their progress and suppuration are indicated by symptoms which shall shortly be detailed.

III. Chronic pleurisy is known to become complicated with tubercles of the parenchyma, by the addition of the above symptoms to those of phlogosis and of pleuritic collection. Thus, a patient has formerly experienced a pain in the side, which, from being acute, has extended itself and become general over the affected side; the parietes of the chest have been painful on pressure and percussion, which last gave no sound from the diseased part; returns of suffocative anxiety and of peripneumonic phlogosis, always corresponding to the exercise taken, or to the use of stimulants; the tranquillity constantly obtained by regimen and demulcent medicines, have proved that the irritating and compressing cause was not seated in the tissue of the parenchyma. The complexion did not change materially, or else it assumed a slight venous appearance when the circulation was accelerated; even a tendency to œdema, as well as some symptoms of aneurism of the heart might have been observed. The *embonpoint* was scarcely diminished. Unexpectedly the scene changes: the pulse becomes more frequent than usual, the skin pallid, retaining its colour in the middle of the cheeks only, the heat of skin is constant, the body begins to lose its form, the patient be-

* See the preceding note.

† Add to this the absence of the dull sound.

‡ Add the dull sound.

comes feeble, and the means which formerly relieved him have no effect. These symptoms cannot leave any doubt of the consecutive development of tubercles, and of the exasperation of the sanguine phlogosis of the parenchyma, in short, of the existence of a genuine pulmonary phthisis.

IV. When individuals exposed by their occupations to continual irritation of their lungs, experience cough and uncomfortable heat of skin, with frequency of pulse, all that can as yet be suspected, is an inveterate irritation of the sanguine capillaries and of the mucous excretories: but if these symptoms do not abate within the time specified above, although the patients have ceased to expose themselves to the action of the causes; if the colour change and the hectic become continued, notwithstanding a careful observance of an antiphlogistic regimen, there is every reason to presume that the irritating cause will henceforward be inherent in the pulmonary tissue, and tubercles are to be dreaded.

V. Obstinate coughs following continued fevers, and which have often been regarded as the effect of a crisis determined to the lungs, ordinarily coïncide with general debility: if tonics, revulsives, and the means which tend to establish the forces and equilibrium do not arrest or should exasperate them, disorganization is to be feared. The frequency of pulse and the loss of colour, which had began to revive, will furnish strong presumptions in favour of tubercles. The heat of hectic must not always be waited for to indicate them, because the exhaustion of strength, and especially of susceptibility, sometimes renders its occurrence impossible, notwithstanding the advanced stage of the disease.

VI. The same torpor will often be observed in phthises, when they become complicated with scurvy.

VII. The irritations of the chest which succeed cutaneous affections without fever, the various febrile exanthematæ or their repercussion, suppressed hæmorrhages, and violent convulsive diseases, may be ranked amongst those pulmonary inflammations whose progress we have just followed to the development of tubercles, or to that of dry and latent phthisis, of which we shall soon speak.

VIII. Phthisis is always to be feared in the debilitated persons whom we have described at the conclusion of our account of the etiology of this disease, whenever pectoral irritations become

rather serious. Therefore whenever those persons contract several catarrhs in succession, and from slight causes, it will be probable that the disease is about to declare itself. If the last catarrh be more severe than the others, and be prolonged beyond twenty or thirty days, the exciting causes having been carefully avoided, it may be believed that phthisis is about making its appearance. A few weeks will suffice to carry it to that point at which no doubt can exist of the nature of the disease. But tubercles are sometimes developed in these individuals when the pulmonary phlogosis has been excited in an appreciable manner. In that case, their formation will be at first conjectural and afterwards confirmed by a succession of the following phenomena.

The patients, generally of the age of from eighteen to twenty-five years,* have from time to time trifling attacks of cough, which are not followed by expectoration. These attacks become more frequent; they change to rather severer paroxysms, most frequently without expectoration, but occasionally followed by a mucous discharge. The pulse is not affected, the heat of skin is not increased, and yet the features begin to change, the bloom disappears, the complexion fades, the face is furrowed with the wrinkles of premature old age, the shoulders become prominent, and talking is attended with visible effort.

Such is the first period of constitutional phthisis in individuals in whom the sanguine system is absolutely inactive, and in whom the lungs are the least disposed to ulcerate, notwithstanding the prodigious multiplication of tubercles. Some observations, although incomplete, induce me to think that it may continue for several months, perhaps even for several years. But who would dare to fix precisely the length of time required by the lymphatic fasciculi of but slightly irritable lungs to become degenerated? Who would have the boldness to assert that they could not be several times restored to their state of equilibrium, after having been affected to such a degree as to produce serious consequences? The only circumstance which appears probable to me, is, that this indolence and these alternations can be no longer looked for when the arterial system, after allowing the disease to make great progress without appearing to be affected by it, awakens from its

* This period is too limited, it may be extended to thirty-five.

long stupor* and hastens the general disorder of the economy. Then the disease is in its second stage and resembles all accidental phthises, the development of which we have endeavoured to trace.

Progress and Termination of Pulmonary Phthisis.

I. Violent inflammatory phthisis, which we shall call *pneumonic phthisis*, has nearly reached its greatest degree, as soon as it can be distinguished from pneumonia, with which it is usually confounded at its commencement, before having well ascertained the causes which have produced it. But what prognosis can be established in a patient consumed by an ardent fever, with full and hard pulse, contrasted with a subsidence of the cellular tissue, and with general discolouration of skin; upon an unfortunate being who presents a wild countenance, cheeks and lips of a violet hue, and the terrors of death depicted in his eyes? So dreadful a state could not last long; his dissolution should be momentarily expected in one of those accessions of suffocation which he so much dreads, before much emaciation can take place.

Death is sometimes preceded by a bloody, blackish, granulated, fetid expectoration, which indicates the disorganization of a portion of the lungs. The violence of the reäction most frequently continues to the last moment: occasionally there occurs a subsidence of short duration accompanied with delirium, cold sweats, and a frightful change in the countenance, which indicate sphacelus, and, in some respects, the *sideration* of the parenchyma. I have never seen a patient recover from an attack of this dreadful phthisis.

II. The least rapid phthisis which gradually succeeds to the prolonged sanguine phlegmasiæ of the pulmonary parenchyma, and which we shall name *catarrhal phthisis*, is very formidable as soon as the frequency of pulse becomes continued, and the complexion greatly changes; but it may remain a length of time in this state without making any rapid progress. As long as it so remains, consumption creeps on at a very slow rate. Emaciation is often counterbalanced by œdema, and if the nocturnal cough,

* In consequence of the influence exercised upon the heart by irritating the pulmonary cavity.

with the redness of the cheeks, and the slight increase of heat did not indicate the continuance of the disease, we should think it less advanced. The complexion is at first of a pale yellow colour, almost the same as in chronic catarrh; but it changes and becomes earthy and livid in proportion as the tubercles multiply. The strength decreases, but the appetite continues.*

This condition may terminate in two modes: 1st, by an universal induration of the parenchyma, without the tubercles being dissolved; 2d, by the tubercles dissolving, and the ulceration of the parenchyma.

In the first case, death is sometimes preceded by a febrile exacerbation, which commonly appears to be occasioned by an accidental cause. If this fever be rather active, the œdema disappears, and the patient sinks nearly into a state of semi-marasmus; at other times he is suddenly attacked with a fatal suffocation, and dies infiltrated. The duration of this phthisis is from four to six months, or more, according as the tubercles become complicated sooner or later with catarrhal phlogosis.

In the second case the patient perishes during the hectic of resorption, which will soon be described.

III. There are two principal ways in which *pleuritic phthisis* also may terminate; 1st, by red induration, without the suppuration of tubercles. Death in this case is less tranquil than in the corresponding one of chronic catarrh, because the respiratory parenchyma, depressed by a double cause, is necessarily sooner obliterated. Consequently, in this grade of phthisis, the patient experiences some of the symptoms which we have assigned to peripneumonic phthisis. There is only the absence of purulent expectorations, and the want of marasmus, by which this hectic of pain can be distinguished from the hectic of suppuration. As the phlogosis of the parenchyma may be increased at each period of chronic pleurisy, the duration of this grade of phthisis cannot be determined with any precision. 2d. The termination of pleuritic phthisis by suppuration will be found noticed hereafter.

IV. *Phthisis, depending on the profession and on the mode of life*, being absolutely subordinate to the degree of the phlogo-

*If the digestive organs do not partake of the irritation.

sis, comes within the preceding, unless the torpor of the sanguineous system assimilates it to dry constitutional phthisis.

V. *Phthisis, in consequence of fevers*, does not differ from the three first; for, 1st, if the strength is not exhausted, or if it has had time to recover, it is inflammatory; 2d, if, on the contrary, the patient has continued languid, with scarcely any irritability, the tubercles follow the same course as they do in the lungs of men enervated by chronic catarrh. The first grade is peculiar to strong and sanguine constitutions; the second to lymphatic individuals, with obtuse sensibility, inclined to venous engorgements, and dropsy. We will say the same of the phthises which succeed intermittent fevers; they all resemble those of chronic catarrh, supposing the absence of constitutional predisposition.

VI. Pure and simple *scorbutic phthisis* is unknown to me. The cough of scorbutic patients in the last stage, without original predisposition to tubercles, does not deserve that name. The state of the viscera has not been ascertained by autopsy: the consumption has not justified the term *phthisis*, applied to this grade of pulmonary irritation.

When a scorbutic diathesis becomes conjoined with a phthisis depending on some other cause, it acts in various modes, according to its degree, and to the tissues it affects. If it reach the lungs, which it generally does when the mouth is affected, it hastens the destruction of those organs. I have but seldom observed this variety, since I have been able to do so with advantage; but it appears to me that the reäction, which at first is very strong, must suddenly subside some time before death, which will be sudden, and without pain. If the organic disorders of scurvy are confined to the capillaries remote from the centre, the diathesis can only act by sympathy on the central visceræ; nevertheless, that impression is sufficient to produce in them a state of stupor. Then the pulmonary phlogosis is almost extinct, the hectic fever abates, the patient becomes infiltrated and ecchymosed, he suffers but little, and dies unexpectedly, without pain. I have seen such cases.

VII. *Phthises resulting from cutaneous affections*, with or without fever, from *suppressed hæmorrhages*, or from *convulsions*, accumulating the fluids and increasing the organic action of the pulmonary tissue, pursue the same course as those which are

produced by accidental inflammation. Thus, there is frequency of pulse, heat of skin, dyspnœa, and cough, until the moment when the tubercles dissolve, and ulcers form. The duration of that period is subordinate to the temperament. It may continue until the moment of death, if the tubercles are not in a state to suppurate. This case comes within the following.

VIII. *Constitutional phthisis* has exhibited itself to us under two principal varieties; 1st, *in the first*, inflammation evinces itself from the commencement of the disease, which is ushered in under the borrowed form of catarrh. If followed in its progress, it will be found to soon reach that period, which we mentioned to be characterized by a moderate hectic from pain. This second period is not imaginary; it is separated from the first by the continuance of the febrile action. In short, as long as the pulmonary phlogosis is maintained solely by external excitants, it must vary with them, (we have often made this remark in describing simple chronic catarrh, and prolonged pleurisy with effusion.) But, as soon as tubercles are developed, the irritating cause can no longer be avoided; it is irrevocably attached to the suffering organ, and the phlogosis still kept up, can no longer be suspended, even though every external irritant should be avoided with the greatest care. In investigating the various origins of phthisis, we remarked that the continuance of the hectic from pain was the constant and only symptom of the confirmed disease.* Therefore, in following the progress of pulmonary tubercular phthisis, from the hectic of pain to its termination, we shall have completed the history of all the varieties of phthisis, which we have collected together in this work.

Whatever may have been the cause which excited the irritation of the lung, as soon as continued frequency of pulse, an uncomfortable sensation of heat, and redness of the cheeks in the nocturnal accessions, are observed, and it is very certain, that this fever is not kept up by any external cause, a fatal result ought to be dreaded. If the patient should be sanguine, irritable and actively stimulated by his mode of life, or by the treatment—the fever daily increases, the cough and dyspnœa become more considerable, the patient grows thin and loses his colour.

* It is in truth the vital symptom; but the mechanical evidence drawn from the dull sound of the part where phlogosis had existed, must be joined to it.

The expectoration has no constant and uniform character; sometimes it is mucous and transparent, sometimes it is opaque; the expectorations are more or less globular and viscous; occasionally they appear bloody; sometimes they alternate with attacks of hæmoptysis; most frequently the sputa become after a certain time, globular and white. Whatever their nature may be, the profuseness is always proportioned to the facility with which the tracheo-bronchial mucous membrane, ordinarily secretes mucus; which is peculiar to the idiosyncrasy of the individual. The lungs may be entirely disorganized by the tubercles; these last may be already putrid and excavated in their centre; the parenchyma interposed between them may be far advanced in induration; and the patient, reduced to the last degree of marasmus, may cease to exist, before the expectorations have taken an uniform character capable of determining what is peculiar to the disease. This uniformity takes place only when the tubercles, entirely disappeared, have left ulcers which increase by eroding the parenchyma. But before dwelling upon the external evidences of this disorganization, we ought to calculate the chances of the period which we describe, and which corresponds to the *hectic from pain.*

This period has no fixed duration; all is subordinate to the temperament of the individual and to the circumstances by which he is surrounded. Should he be sanguine, irritable and irritated, the hectic becomes so active, that it appears like pneumonic fever; and although the emaciation makes no very great progress, life is in danger, because there may occur an universal red induration, completing the disorganization of the lungs. This termination may be observed at a period when the disease is but slightly advanced, for example, during the first fifty or sixty days of well-characterized hectic fever, and long before marasmus; but it is also observed much later, the emaciation being already very great, after six or eight months illness; for in the greater number of these cases, ulcers do not occur. Very many amongst them, who have expectorated a great quantity of more or less opaque mucus, or a white, clotted substance, probably furnished by the detachment of a kind of tubercular pulp, die considerably extenuated, without true ulcers being found in them; all the disease is confined to tubercles, partially emptied and located in the middle of the hepatized parenchyma. Tubercles may be

found similarly emptied, in those who have only expectorated mucus. There can be no doubt that fluid tubercular matter may be resorbed. The morbid incidental symptoms are sometimes met with at the end of this period, but they belong particularly to that of suppuration.

When the rapid progress of phlogosis, or the great increase of tubercles, do not hasten the obliteration of the parenchyma, or else, when the tubercles are of such a nature as to destroy each other promptly, which, it seems, greatly depends upon the temperament, symptoms of *suppuration of the lungs* are manifested. They may appear a very few days after the hectic from pain begins to be well defined; sometimes they do not show themselves until it has lasted for several months; in either case, they are always the same, except in the degree of intensity. The activity of the fever is greatly increased, the tissues become extenuated incomparably faster than before, the cheeks become hollow, the eyes sink into the orbits, the countenance, to make use of a common expression, becomes *hippocratic;* all the excretions become repulsively fetid; the patient expectorates profusely, a white, creamy and diffluent, or granular, bloody, sanious and fetid sputa, according to the length of time this matter has remained in the focus of disease. It appears to me, that when it is ejected quickly, it partakes very much of the character of phlegmonous pus; but that when the ulcers are large and numerous, and expectoration has been suspended for some hours, the substance ejected is most frequently sanious and fetid.*

* In this work, I have not made sufficient mention of those phthises, in which ulcerated cavities are not excavated in the tubercles and are not the result of their destruction; they are, however, very common. I have only described them in their greatest degree of intensity, in that, which from the rapidity of its march, resembles pneumonia; (see p. 254, &c.) but they are also found, and may always be suspected in constitutions which are not very lymphatic, and where the fever has been very high. In that case, the parenchyma is filled with numerous granulations, differing in size, but all small, white, yellow or blackish. The ulcer is excavated in the hepatized parenchyma, and the granulations are seen in the ulcerated parietes in greater abundance than elsewhere, simply because the inflammation was more intense there, than in any other part of the organ. But the practitioner must not depend much on the precise diagnostic of this kind of lesion; he will find it of much more importance, to observe the degree of the irritation and of the obliteration, always to be perceived by the dull sound, that he may be enabled to proportion the nature and activity of his

Very distressing incidental phenomena are added to the principal disease: profuse, viscous, fetid, irregular sweats are observed; diarrhœa, which had only occurred in consequence of occasional indigestions, becomes constant, and adds to the sensation of exhaustion and pain. The appetite is in general very great; in some cases, however, the stomach sympathizes so much with the irritation of the system, that it refuses food and becomes phlogosed; or, although the appetite continues, digestion becomes laborious and painful. Sensibility of the abdomen to the touch, is very frequently the consequence of the paroxysms of cough. But when the renitence, the tension, and the dull, deep-seated pain combine and increase, it is evident that the peritoneum is phlogosed. Sometimes plegmonous depositions take place in different parts of the subcutaneous tissue: they cease to suppurate as soon as they have been opened, and the wound remains dry and pale. The whole exterior of the body is so sensitive that simple pressure produces boils and erythema in those parts upon which the patient rests, to turn in his bed. When he still retains a certain degree of strength, these inflamed points suppurate; when near dissolution they speedily sphacelate. The encephalic organs sometimes participate in the disorganization; this is ordinarily evidenced by idiocy, by an inclination to sleep, or by coma; sometimes blindness and paralysis are its fatal indications, but I have never seen a cerebral or meningeal irritation manifest itself by the violent symptoms of madness.

The third period of pulmonary phthisis cannot last long. When it commences before the body is wasted, and it is not too much accelerated by irritants, it appears to me that it may last nearly three months; this is the longest period I have ever known; it does not in general exceed six weeks, and when it does not declare itself until the patient is very feeble and extenuated by a long hectic from pain, general dissolution is accomplished in from fifteen to twenty days.*

means, to the rapidity of the inflammation. Although the tubercles may not be large, this phthisis is nevertheless worthy of the name of *constitutional*, for it owes its origin to the great inflammatory predisposition of the lungs.

* In cases where the disease is confined to one lobe, the phthisis, although accompanied by a great deal of fever, may last several years. But in time the inflammation is communicated to the other lung, or perhaps to the gastric passages, and death soon follows.

2d. *In the second variety of constitutional phthisis*, which developes itself very slowly and sometimes remains years before assuming its characters, the hectic from pain is sometimes so feeble that it cannot be ascertained by the pulsations of the pulse. A sensation of heat, together with indefinite rigors, a red spot in the middle of the cheeks, which forms a striking contrast with the universal paleness, which is much greater in this form than in any other, ought to be sufficient to point out to the physician a febrile action confined to phenomena of the capillary vessels, in consequence of the want of strength and of fluids.* The cough is frequent and violent, as in other phthises: it is dry, or only produces a slight mucous expectoration. There is great pain in the chest, considerable dyspnœa without much agitation of the thoracic parietes or swelling of the face, and an indescribable sensation of weakness.

It is in this variety of phthisis, which may be prolonged many years, that the diseases of the lymphatic fasciculi are carried to their greatest height. The tubercles pervade all the parenchyma, they compress, obliterate, and slowly annihilate the sanguine capillary system of that organ, and the volume of blood diminishes in the same proportion; from this cause proceeds that astonishing paleness and the constant decay which are ordinary symptoms of this species of phthisis.

As the sanguine phlogosis is very trifling, the inflammatory incidental phenomena or the consecutive local irritations are not common, and do not much alarm the patients. The most common are those which depend on the progress of lymphatic disorganization in the other cavities, particularly in the abdomen.†

There are but slight external indications of these affections. A local uneasiness or obtuse pains in the abdomen, the renitence of that region, and a defect in nutrition are its most ordinary effects.

* If you wish to be assured of the disorganization, you must always connect with it the obtuse sound, and the evidences obtained by the stethoscope, which are, the mucous rhonchus, hissing, the absence of the respiratory murmur caused by the obliteration of the bronchial vesicles, and, in short, pectoriloquism if there should be ulcerated cavities.

† They do not occur unless gastro-enteritis becomes complicated with the pulmonary phlegmasia: but this gastro-enteritis may be as little indicated as the chronic pneumonia, and for the same reasons.

The duration of this phthisis cannot be fixed: it frequently continues from two to three years in scrofulous or not very sanguineous individuals. If the retrocession of the chronic cutaneous affections, &c. has provoked it in persons rather better provided with blood and energy, or if the patients are too much stimulated, it may, at any period whatever, hasten its progress and act as one of the grades already mentioned. Death only takes place in the last stage of marasmus.

There is a variety of phthisis which it is very difficult to recognise in the living body; it is that which depends upon a scirrhous enlargement and degeneration of the lymphatic glands which are distributed around the principal branches of the bronchiæ and in the mediastinum. We record it here, because it resembles very much the grade which we have just examined, and may take on its appearance, even in patients in whom the sanguineous system still retains a certain degree of energy. In fact, the mediastinal glands may develope themselves considerably without the parenchyma being sufficiently compressed and irritated to produce any other effect than a slight dry cough and appearances of catarrh,* of asthma, or of an aneurismal affection; and until the white fasciculi disseminated through the substance of the lungs partake in this alteration, the disease cannot present any well-defined character.

I shall not undertake to describe this insidious variety of phthisis, which I never recognised until after death, and most frequently in the bodies of individuals coming from other wards, in whom I had no opportunity of observing the disease.† It may be useful to observe whether this phthisis would not correspond to one of the causes which affect the large lymphatic fasciculi, such as small-pox, the repercussion of herpes, of itch, of scrofula, &c. rather than to long-repeated stimulations of the respiratory parenchyma.‡

* The bronchial catarrh really exists, and from it arises the tubercles; we have already mentioned it several times.

† I have since been able to distinguish it by the obstinacy of the catarrh, the smothered voice, and the dull sound of the superior region of the mediastinum, when the tubercles were sufficiently numerous to produce it.

‡ See for this last question, the preceding note.

Organic Alterations.

All the affections which belong to the different phthises may be included under two principal heads: 1st, red induration, which we consider as the effect of sanguine phlogosis; 2d, the development of certain scirrhous, cheesy, pulpy, lardaceous, calcareous, osseous, and other substances, which we attribute to the disorganization of the lymphatic fasciculi.

We have proved that the first species of disorder or induration was always in direct proportion to the evidences of inflammation manifested during the life of the individual; and that the second was more or less considerable according to the continuance of the irritation in a feeble degree, and to the relaxed habit of body and less sanguineous condition of the patient. This subject may appear, in strictness, to have been sufficiently dwelt upon, but as some writers have advanced, that as the lymphatic glands are not met with in the pulmonary tissue, the tubercles which are there developed cannot belong to the absorbent system, we shall make some remarks calculated to throw light upon this important subject.

The comparisons which we have instituted in our preliminary considerations on inflammation, will suffice to demonstrate the analogy existing between the white matter which accumulates in the middle of the irritated glands, that which is met with in the centre of pulmonary tubercles, and that which is found deposited without any determined form either amongst the fibres of a parenchyma, or amongst the cellular layers of a membrane.* We have said that the conglobate glands, the secreting parenchymata, and the viscera abundantly provided with absorbent vessels, into which the cellulary tissue cannot develope itself by effacing the proper tissue, are found more or less inundated with this matter, after having suffered very long from irritation. We have remarked that all the organs which could allow the cellular tissue serving as a medium of union to their proper tissue, to acquire a great development, presented the lardaceous degeneration more frequently than the tubercular, when the irritation remained for a length of time fixed in it. Are we not thence to conclude that the gelatinous, albuminous, adipose,

* Add to this every species of granulations.

steatomatous, &c. matter, which form that state called *lardaceous,* must be to the meshes of the cellular net-work, what the tubercular and cheesy matter is to the white capillary fasciculi appropriated solely to the resorbed fluids? We may also add, that the tissues which, by their particular disposition, are exposed in their chronic inflammations to be sometimes resolved into cellular tissue, such as the serous membranes, present us in that case the different fluids which concur in the formation of the lardaceous state, and at the same time with depositions of that cheesy matter which has been called *tubercular.*

Since chemistry has taught us that the immediate materials which enter into the composition of our fluids, are transformed one into the other, by a slight effort of the living fibre to which they are submitted—from the gelatinous to the fibrous state—from that of light and soft oil, such as cream, to that of concrete oil, such as tallow—can we hesitate to recognise the identity of the matter which forms these different depositions? Do we not find, that it is always the consequence of a chronic irritation in which the arterial capillaries have performed an inactive part, in the same manner that the white creamy pus of phlegmon, is the product of the acute irritation which depends upon the active excitement of these same vessels? Does not that cancerous degeneration, which so often disconcerts our therapeutic plans, form itself in the middle of the tissues overwhelmed by the extravasation of these concrete fluids, whether the adipose, or the steatomatous, or the caseous form predominate?

But do not let us dwell any longer upon this question, the evidence of which must strike every one who is clear-sighted: let us be satisfied with this last reflection, which will directly reply to the objection which is made against the glandular nature of pulmonary tubercles. The glandular form is not essential to tubercular degeneration; it is evident, that wherever there are lymphatic fasciculi, depositions of the matter which constitute tubercles may be formed, and that these fasciculi secrete it in the conglobate glands, by the same mechanism, as in the parenchyma of the liver, of the lungs, and of the spleen. We must therefore in future consider this matter as the product of an irritation of the white fasciculi, a production really extravasated and effused between the fibres of the organ, be it a conglobate gland or a secreting parenchyma, in the same manner as the adipose, steato-

matous and other matter is effused in the meshes of the cellular net-work, and the caseous exudation in the closed cavity of the serous membranes.*

We have enumerated all these facts in our preliminary remarks on inflammation, but in a general manner; it now remains to apply them to pulmonitis. As an external cancer cannot be propagated, unless favoured by a development of the surrounding lymphatic fasciculi and by an extravasation of the material product of their irritation which throws the sanguine capillaries into that state of torpor, necessary to the progress of cancerous inflammation, therefore the ulcers of the pulmonary parenchyma do not become eroding, except in individuals, in whom the tubercular degeneration is intermixed with the red induration, that is, in lungs with many whitish points. When the tubercles are large and insulated—which often happens in robust persons who have accidentally become consumptive—and the parenchyma which contains them, is sound or with a red induration, without effused tubercular matter, and without miliary granulations, these tubercles never leave disorganizing ulcers in their place.

If there are cases which can be cured, after the tubercles are dissolved, it must undoubtedly be those which are here indicated; but, alas! we have already remarked, that the cause which produces one tubercle, produces thousands, and if it be not by ulcerating the parenchyma, it is by phlogosing or obliterating it, that these fatal productions daily conduct so many victims to the tomb.

The calcareous, stony, cartilaginous, osseous and other degenerations, can only be considered as the effect of the action of chemical affinities become free to a certain degree, in masses of animal matter, subtracted from the influence of the living capillaries; these combinations are besides facilitated by the temperature of the part. The greater the mass, the more frequent is the degeneration. It never takes place in the small insulated tubercles of acute and highly inflammatory phthises; it is often found in the voluminous tubercular depositions of dry and very chronic phthises, and in the collections of the cheesy matter, effused

* There is sometimes, besides the extravasation, an impairment in nutrition always produced by irritation, which contributes to the formation of these extraordinary tissues.

in the pleura in consequence of long-protracted pleurisies, in persons of a lymphatic constitution.

The large masses of tubercular matter, are not susceptible of real putrefaction, so long as they are not in contact with air and moisture. It is also under such circumstances only, that they assume the forms we have just mentioned. But when the atmospheric air can reach them, they are seen to undergo at the same time an acidulous and ammoniacal fermentation, the effects of which we have studied on the living economy. We are sure of finding tubercular abscesses with a sanious pus, either in the parenchyma or in the pleura, when the hectic fever has been violent, long and consumptive, with fetid excretions.

The organic derangements which are met with in the other structures, in consequence of pulmonary phthisis, are very frequently in unison with the state of the lungs. If the phthisis has been rapid, and violently inflammatory—gastritis in its greatest intensity is observed, indicated by the deep red colour of the mucous membrane of the stomach, and by the constriction and hardness of that viscus, and by red spots upon the internal membrane of the intestines.

The more prolonged phthises, with suppuration, very seldom fail to leave a livid redness in the mucous membrane of the digestive canal, and particularly in that of the colon, which is found thickened, granular, ulcerated, and sometimes as though scirrhous. This tendency, which appears to be confined to the derangement of the small mucous glands, will be examined more particularly in the second volume of this work. Scirrhosity and tubercular degeneration of the mesenteric glands, almost always accompany this degree, particularly if the individuals are originally predisposed to the disease.

Dry phthises, of long duration, are very frequently complicated with an almost universal tubercular degeneration of all the viscera of the large cavities. It is in these cases that dry and tubercular peritonites are met with. The serous membrane appears studded with white points, which are so many small depositions of that matter; its cavity is often filled with a cheese-like or lardaceous substance; the tissue by which it adheres to the organs, may be found in a lardaceous state, and containing, besides, small collections of tubercular matter. Enormous scirrhous tumours are very frequently observed in the mesentery, and in the omentums, the

glands of which are tubercular in their centre; the liver appears yellow, oily, granular, and filled with tubercles, or small depositions of tubercular matter, as though effused between its glandular lobuli. Does not the alteration of this viscus, which has given to it the name of *fat liver*, resemble the lardaceous degeneration?* I have often seen the spleen hardened and inundated with tubercular matter, irregularly deposited in its parenchyma and beneath its serous membrane. The kidneys are very seldom tubercular. The bladder and the prostate gland are not exempted from the lardaceous or tubercular thickening; but the inflammation of their internal membrane is less frequent, and rather belongs to slightly inflammatory phthises, than to those of which we are now treating.

I have found in the serous membrane of the brain, an effused fluid, frequently gelatino-albuminous, and sometimes so much like the product of the irritation of the serous membrane of the two large cavities, that I have compared the one with the other. The thickening and the opacity of the arachnoid have more than once confirmed this opinion. The parenchyma is sometimes softened; but I have never found it containing abscesses or tubercles.

I cannot conclude this chapter without rendering homage to the anatomical labours of MM. Bayle and Laennec, who have described with great truth, the different forms of tubercular degeneration in the various tissues of the human body. As I was pursuing my observations when these excellent observers published their researches,† I had the advantage of being able to compare their descriptions with what I had constantly before my eyes, and to make the whole subservient to the conclusions which I thought should be drawn from the comparison of the organs which had become tubercular.

* I have pointed out, in the *Examination*, the connexion between this state and enteritis.

† See the "*Journal de Médecine*," published by MM. Corvisart, Leroux, and Boyer, for the years 11 and 12. (Note to the former editions.)

CHAPTER VI.

Treatment of Lymphatic Inflammations of the Lungs.

Ought the treatment of phthisis pulmonalis to be as varied as the cause which has produced the disease, as is commonly asserted? I cannot strictly adopt this proposition. It appears to me to have been demonstrated, that a very great majority of the cases have but one termination, chronic inflammation of the lungs. If this be the case, the fundamental indication is to remove that inflammation, so as to prevent tubercles, which would result from it. There certainly exists some diversity in the means which the physician employs to accomplish this end; but in applying them to one principal object, the memory retraces them more promptly and clearly.

This first indication, applicable to the very great majority of accidental and constitutional phthises, is the guide to the treatment in the commencement of the disease; but in proportion as the complaint advances, that indication insensibly loses its importance, and a period arrives when it is but of secondary consideration. That which replaces it, consists in restoring the equilibrium of the circulation of the white fluids, and in resolving the engorgements of the lymphatic fasciculi. This new indication, which appears but secondary in inflammatory phthises, whose cause is perfectly evident, becomes primitive and fundamental in those in which the phlogosis is developed consecutively to the deranged state of the lymphatics; in those, consequently, in which the primary cause of the unequal distribution of the forces, and of the fluids, is the most difficult to ascertain. After these two great indications, there are some of minor importance, which have for their object to diminish the suffering, and to prolong, for a short time, the life of the individual. They are all relative to the predominant symptom, and seldom appear until an advanced stage of the disease.

These considerations induce us to divide this chapter into three parts. In the first, we shall collect together the various remedies we possess for the cure of inflammation in general, and particularly for that of the lungs. We shall place in the second, those which

have the property of resolving lymphatic engorgements of that organ. The third will be devoted to the examination of particular medicaments appropriated to the different predominant symptoms, which constitute, in other words, the palliative treatment. We shall conclude with some cases successfully treated.

I. ON THE MEANS OF CURING INFLAMMATION OF THE LUNGS.

The basis of the treatment of sanguine phlogosis of the lungs, has been laid down in the therapeutics of catarrh, of peripneumony and of pleurisy; but we must here give more ample details, in order to facilitate the application of the principles which we merely indicated, in speaking of some species of inflammation, and upon those infinitely varied grades of phlogistic irritation of the lungs.

The first measure which presents itself for the removal of an obstinate phlogosis of this organ, is to remove the cause which produced it, when it is still in action, and may be suspected of keeping up the disease.

A rigorous execution of this precept, embraces the application of the rules for the preservative treatment, at least for those phthises whose first cause is an evident pulmonary irritation. Thus, guard against the action of cold, by clothing appropriate to the vicissitudes of the atmosphere, by thick and water-tight coverings for the feet, by flannel jackets, which gently stimulate the skin, during the cold season; by exercise, which keeps up the circulation in the vessels of the surface; by constant care in avoiding damp and subterraneous places, &c. &c. and you will not only allay the existing catarrh, but you will also prevent a relapse, and of course its consequences. Induce your patients to forsake any occupation which fatigues the pulmonary organs, either from its requiring violent efforts, such as singing, loud declamation, playing on wind instruments, &c. or from its compelling the individual to assume an attitude which compresses the lungs, or which requires any species of exercise that exposes the chest to repeated percussions, such as fencing; or which introduces into the trachea and into the bronchiæ, irritating dust or unwholesome air, &c. and you will then accomplish a double benefit, cure the existing disease and prevent its return. The same can be said in regard to immoderate watchings, which weaken the tone

of the external capillaries, and facilitate the transmission of the exhalent action to the mucous membrane of the bronchiæ; of struggles of the mind which suspend respiration; of violent passions, which accumulate the susceptibility in the capillaries of the lungs; of excess in the use of stimulating food and drink, which produce a state of arterial excitement and plethora, very favourable for fixing in one place an inflammatory diathesis. Delicate persons, whose fears have already been excited by an obstinate cough, by alternate sensations of heat and cold, by slight oppressions, by severe pain in the chest, by tickling in the throat which obliges them to cough every moment, &c. can hope to escape the phthisis with which they are threatened, only by courageously and perseveringly renouncing all those habits and enjoyments which expose them to the impression of these perturbating agents. These precautions will be of infinitely more use to them than an issue, which frequently becomes more injurious than useful, by inspiring a perfidious security, and thus justifying them in continuing their accustomed mode of life. I am aware that it is painful for them to hear so cruel a truth; but is it not of great importance to remove a prejudice which induces them to believe that phthisis may be cured by specifics? Generally speaking, medicines are only useful in transient disorders; it is from hygieine alone that the cure of inveterate diseases can be obtained, and particularly of those which, like pulmonary phthisis, are connected even with the mode of organization itself, and with the manner in which the functions are modified by the agents which daily influence us.

When the exciting cause has been removed, the inflammation necessarily diminishes. When it is not very inveterate, it is generally observed to subside of itself during its acute period, beginning from the time when the action of the exciting cause has ceased. But success is not always as speedy, and the inflammation very often resists, although the stimulus which perpetuates it cannot be discovered. Occasionally it is the exhaustion of the too long irritated capillaries, and the partial induration, as was proved in the history of chronic catarrh and pneumonia; sometimes it is a tubercular germ which commences to develope itself in the midst of the sanguine fasciculi, as was observed in acute phthises at other times it is habit alone that is to blame, which is very frequently shown by the effect, in some respects miracu-

lous, of revulsives, and of all the means which change the direction of organic actions.

However it may be, when the phlogosis refuses to yield to the removal of the irritating cause which originated it, it must be treated by more energetic means. These are of various kinds; some act by directly reducing the power of the sanguineous system; others, by moderating its over-excited action, by producing relaxation, by restoring the secretory and exhalent action in the more sensible tissues of the economy, and even by introducing themselves into the interior of the vessels. There is a third series of antiphlogistics, which are only relative, and composed of both internal and external medicaments, which do not, like the preceding, arrest the phlogosis of the lungs, by diminishing the amount of the forces, or that of the excitants, but rather by increasing both in the capillary fasciculi more or less distant from the affected part; or by producing an artificial phlegmasia, destined to replace the one which is dreaded. They are called *revulsives*. We shall endeavour to appreciate them, after having duly estimated the two other series, which ought always to have the precedence.

The first series of antiphlogistic means consist of bleedings, general as well as local. Bleeding has so much influence upon the economy, that it is not without good cause that the practitioner is seen to hesitate when it becomes a question whether or not to have recourse to it. Pulmonary phlogoses, are, of all diseases, those most requiring this bold measure; but it can only be of actual service in the commencement and before the existence of tubercles. It may, however, be applied to some cases of confirmed phthisis; but only as a palliative. We will here consider it under every circumstance, in order to complete the therapeutics of inflammations of the chest, which may all terminate in pulmonary phthisis. It will now be necessary to form some rules by which the number of bleedings and the quantity of blood to be taken away may be regulated.

It is no less difficult to indicate the sings by which the degree of strength permitting a general or local evacuation of blood may be ascertained, than it is to determine the quantity of that fluid which may be abstracted. Every physician insensibly accustoms himself to judge of the strength of his patients; but when he has acquired the nicest tact he will not be able to im-

part it to others. No physician has more distinguished himself in the knowledge of the pulse than Bordeu.* Yet, notwithstanding the elaborate treatise which he has left us on this subject, what practitioners have ever acquired the exquisite tact he had acquired? Generally, in our medical works there is no standard by which we can measure the strength of the patient, and be guided in the adjustment of our debilitating agents; perhaps this deficiency arises from the physicians, whose works are our guides, not having sufficiently analyzed the operations of that intelligence which conducted them to that delicate and certain tact which we so much admire. It is difficult to supply this desideratum:† satisfied with having pointed it out, I shall not undertake to supply its place except by laying down some rules, which will momentarily aid me in arranging the therapeutical plan of inflammatory phthisis. In order to proceed in it with method, I shall reduce inflammation to four degrees, in each of which I shall endeavour to determine the utility of sanguineous evacuations.

First Degree of Inflammation: Strength of the Pulse, Strength of the Individual.

1st. When a well-formed, vigorous man, in the flower of his age, attacked with a pulmonary inflammation, has an expanded, hard, and frequent pulse, bleeding may be repeated until some marked diminution in the symptoms is obtained. If the pulse be not frequent in incipient pulmonary inflammation, the danger is always less, unless the pain in the heart should have abated it. (See the symptoms of pleurisy with pericarditis, p. 208.) But bleeding is always less necessary when the frequency of pulse is the most certain symptom of the too active irritation of the arterial system.‡ 2d. When the pulse in early life has the characters of vigour we have just noticed, it is proper to bleed, but with more moderation. 3d. If it presents these characters in individuals beyond the age of forty-five, I still think it better to bleed.§ This is the treatment for persons who have pursued a tranquil, not debilitating mode of life, who are not wasted by

* He had been preceded by Solano de Luques.

† See the *Examination of Medical Doctrines.* ‡ That is to say, the heart.

§ When acute phlegmasia has not been grafted on chronic, and it makes its appearance with violence, bleeding may be performed at any age, until it is removed.

sorrow, and who have not been subjected to the action of the deleterious and contagious miasmata which produce fevers of a malignant character.

Second Degree of Inflammation: Strength of the Pulse, Weakness of the Individual.

Supposing that the patients, in either of these three periods of life, who present themselves with a large and strong pulse and a tolerably good complexion, have been exhausted by excesses, by disease, by long want, by fatigue, or have breathed miasma capable of transmitting febrile contagion or *typhus*, is it still necessary to bleed them, in order to prevent the destruction of the lungs? This is one of the questions in medicine most difficult to solve, the solution of which, however, is closely connected with the safety of a great many individuals. I do not write to bring forward authorities in support of my opinions and of the treatment which I have adopted in some difficult cases. I should find, like many others, the means of justifying the most incoherent and empirical treatment, for every self-conceited person can entertain us with his success; but my object is not to found a system: I write in order that my colleagues may apply my observations for the good of mankind, either by adopting my views, or by correcting me in my errors. I shall therefore frankly detail my experience.

1st. The most serious inflammations of the chest are met with in men of strong constitutions but who have exhausted their strength by having abused it. In such individuals, the inflammation is very considerable from the first moment; it is known by the seat of the pain, which does not confine itself to one single point; sometimes it occurs before and behind; it may, however be circumscribed and even absent, but then there is great anxiety, the attention of the patient is exclusively absorbed by the suffering of the viscus, an excessive distortion of the features, violent agitation, and most frequently an obstinate determination not to change an adopted position, are the certain evidences of the organ of respiration being inflamed in a great extent of its parenchyma or of its serous membrane. The pulse is then large, hard, and especially very frequent, unless the phlogosis extends to the serous membrane of the heart, or the excess of pain should have paralyzed it.

I have bled in this degree of phlegmasia and the patients have died: I have been sparing of their blood and I was not more successful. I have, however, obtained more cures with bleeding, than without the assistance of that measure. When the patients have sunk under the disease, autopsy has always demonstrated extensive pleuro-peripneumony, and very frequently, inflammation of the pericardium.*

2d. Although death generally takes place, in the acute stage, it sometimes happens that the phlegmasia becomes chronic. Very often, there is a pleurisy, which accumulates in the serous membrane a fluid that produces atrophy of the lungs; such are, in most instances, the supposed dropsies of the chest in drunkards. I cannot decide to what extent bleeding might be useful in arresting the progress of this variety of phthisis. I think, however, that it is more prudent to do so, than to abstain from it, when the sick have had good sense enough to call for a physician before the symptoms of disorganization of the lungs have become very decided. But when extreme anxiety and great alteration of the features announce to the observer, that the parenchyma is seriously disorganized, bleeding is no longer efficacious. If it be still attempted as a palliative, to alleviate a sensation of oppression, which no other means will effect, the largeness and the hardness of the pulse should not sanction the free abstraction of blood; there would soon follow an irreparable degree of weakness. It is best, it appears to me, to recur to it frequently. Copious bleedings are only allowable in the first stage of pneumonia. Whenever I have ordered bleeding at an advanced stage of the disease, solely to prevent the patient from suffocating, I have never permitted more than two or three ounces of blood to be taken: a bleeding of eight or ten ounces might paralyze the brain and the heart, and bring on instantly the agony of death.

3d. When an army has just performed a long march, the soldiers who are attacked with peripneumony are so quickly prostrated, that in a few days, the pulse has lost all its strength and firmness.

Ought bleeding to be practised during the short period of time

* If bleeding could be practised from the moment of the attack, the phlegmasia would not reach that degree of intensity.

in which the reäction is violent, to prevent death or the chronic stage, although convinced that the individual will soon fall into a state of exhaustion? I still think that it is the better course; for the greatest evil to be dreaded is the disorganization of the lungs, and but a few hours are sufficient to effect this. When a pulmonary phlegmasia, developed under such circumstances, appears to assume the chronic character, with a hard and strong pulse, bleeding may still be performed as long as symptoms of disorganization are not evident. Should they become so, blood must be spared, as we have previously recommended.

4th. When a patient, already weakened by a chronic phlegmasia of the chest which had existed in a very moderate degree only and almost without fever, suddenly experiences an accession of oppression and presents an excited countenance, burning skin, a frequent, hard and full pulse, what benefit can be derived from the measure which is the subject of this discussion? It has been seen in the detail of the observations which I have reported, that I have very seldom made use of it. In fact, (*A*) when these exasperations have not been excited by external stimulants, they announce a disorganization which has made considerable progress and which will destroy the function of the lungs. Bleeding can now only enter into the treatment as a palliative, which the extreme vigour of the pulse can alone authorize. It ought to be practised by taking small quantities of blood, in conformity with the precepts which we have just established for the preceding cases. (*B*) When the inflammatory exacerbation which comes on during the continuance of a chronic phlegmasia, is the consequence of a too nutritious regimen or of the abuse of too heating *ingesta*—diet and acidulated demulcent drinks will very readily allay it, without having recourse to bleeding. It would only be useful in the case where, notwithstanding these precautions, the irritation should become continued, unless the alteration of features, emaciation and paleness should cause this grade of inflammatory recrudescency to be classed with the preceding.

5th. The inflammations of the chest which give to the pulse such a force as to resemble a violent *hypersthenia*, sometimes occur in men, who have imbibed the contagious miasm of *typhus;* after a few days, and even after from twelve to twenty-four hours violence, the pulse sinks, the exhalations be-

come fetid, the strength is annihilated; petechiæ and vibices announce the atony or the rupture of the capillaries and the anticipated decomposition of the fluids.* Most frequently the patient dies. If they always perished, I should have no remarks to make upon this phlegmasia; but they are often restored, not to health, but only to a state of convalescence. They are thought to be out of danger, but the cough continues, the symptoms of tubercular catarrh are recognisable, and at the end of two or three months they die in a state of semi-marasmus, because, generally they have not had sufficient strength to produce a phlogosis capable of entirely emaciating them.

Ought bleeding to be employed, to prevent this phthisis, whilst the pulse is large and strong?

In the fear of weakening the power of the inflamed capillaries to recover their natural action, it is thought best to confide to blisters, to camphorated juleps, or to half soothing, half stimulating potions, as is recommended by praiseworthy authors, and as is insisted on by the Brunonians, who do not even fear being prodigal in the use of pretty powerful stimulants. I have seen many of these cases when the hospital fever prevailed during the winter: it is often found complicated with pectoral phlegmasia. I very seldom bled, and nearly every patient either died or remained in an incurable chronic state. Some escaped after such profuse bleedings from the nose as to alarm me. Those who were received during the first twenty-four or forty-eight hours, and whom I directed to be bled, (but they are very few in number,) were cured, although the prostration which ensued from the bleeding was terrifying. A similar patient, upon whose thorax I had ordered leeches to be applied, lost a considerable quantity of blood from the bites, which was followed by excessive debility; but he recovered without retaining any chronic affection.†

In summing up my views upon this point, I would say, that when a physician is called early, it is more prudent to moderate the too impetuous circulation by general and local bleeding, than to husband the strength for the debility of the next day. Most

* These symptoms are those of gastro-enteritis.

† This practice, which then alarmed me, has since proved successful in many cases.

frequently, alas! it is only the effect of the destruction of the viscus which was the end of the congestion.

I dare not advance any thing more upon the question of ascertaining to what extent debilitated individuals ought to be bled, who present momentary symptoms of violent inflammation. I wish this subject would be discussed by men, who to long experience join a sound judgment.

Third Degree of Inflammation: Strength of the Individual, Weakness of the Pulse.

This grade is one of those most frequently met with in society. I do not mean to treat only of patients who are in a state of plethora; it is sufficient for my purposes, that the individual enjoys good health at the time of the invasion of the phlegmasia, and that he has not been secretly undermined by any of the debilitating causes above mentioned, or by any excesses. Several circumstances then appear, which it is desirable to detail.

1st. The pulse is neither large nor hard, because very frequently the pleura alone is inflamed in a very circumscribed portion of its extent, or because the irritation is confined to the mucous membrane of the bronchiæ, and especially, because the patient is not of a vitiated susceptibility; this is supposing a degree of strength very favourable to the maintenance of the equilibrium of the system. He appears almost in the vigour of health, and the evidence of the impairment of the great viscera cannot be observed in the countenance.

It is in these cases that art has the most advantage; it is here that it is sure to triumph. I cannot too strongly fix the attention of practitioners upon this grade of pulmonary phlegmasia, which belongs more especially to my subject, than the preceding ones. It is this degree, neglected by the sick, because it does not appear to endanger life, which most frequently gives rise to phthisis.*

In most persons it can be dissipated by the assistance of severe regimen without leaving any trace behind. If after external stimulants no longer act upon the patient, it still resists, bleeding is indispensable and becomes an infallible cure. When the patient

* A great truth, which, in general, is not yet sufficiently felt.

is very strong, he may be bled copiously and even repeatedly. If he be delicate, local bleeding is most appropriate, because the pulse is less expanded and softer; but after these energetic means the hygienic precautions ought not to be abandoned, because it is generally owing to its having been kept up by stimulants, or renewed by cold, that this degree of phlegmasia becomes the cause of disorganization.

2d. Authors say, that the pulse may be feeble in a vigorous person when plethora is very considerable. In this case, bleeding will restore all the energies he would have had, if nothing had impeded the development of the powers of the system.

I have never known this weakness of pulse to depend solely on excessive plethora. I have always remarked, that the sensibility of the heart to local phlegmasia, and the largeness and hardness to the touch of the arteries, were in proportion to the degree of nourishment taken by the individual. But I have observed, that when the phlegmasia was very extensive, and when the serous membrane of the heart participated in it, the action of that organ was impeded by the excess of pain and the pulse was small and weak. I have already spoken of this degree, in treating of a strong pulse, and I have given the symptoms which indicate extensive inflammations; but this is the proper place for mentioning, that the more feeble the pulse in those pleuro-pneumonies which attack strong and sanguineous men, the greater is the danger. Let us point out the reason.

(*A*) When an inflammation is not extensive and the pain is slight, the fever is local, and there is not even an alteration in the pulse; this is the first variety in a robust person. (*B*) When the inflammation occupies a larger fasciculus of capillaries, and the parts are susceptible of pain, the heart is strongly affected, but the pulse is not always hard and strong. When the phlegmasia is seated amidst the larger and numerous branches of the arterial tree, as in the lungs, it cannot fail to become strong and hard; but if the inflamed capillary fasciculus, although large and sensible, has but few sanguine vessels, then, unless the person is plethoric, the pulse never becomes very hard. This is the case in very simple pleurisies, in which, however, the pulse is more vigorous than in peritonitis. (*C*) When the inflammation invades a considerable structure, if it suddenly establish its seat in all the tissues of which it is composed, and in the whole ex-

tent, or nearly so, of the organ, there results so great an uneasiness, that the brain can no longer perform any extended and regular action. The muscles of voluntary motion tremulous or immoveable, in a half tetanic state; the heart, which is not influenced in a different manner, acts but feebly; the sanguineous mass, which should circulate, is stagnant, the oxigenation of the blood is impaired, the secretions no longer continue with their usual exactitude. This torpor is not by any means the effect of a plethora, which impedes the cerebral influx; on the contrary, the plethora is the effect of the torpor.

The weakness of the pulse will be found to result from the violence of the inflammation, more than from the plethora, when found complicated with an extended pain, or only with great uneasiness, (for such an uneasiness is the *summum* of the pain,) with extreme alteration of the features, and whenever the action of the muscles and trunk, which concur in the function of respiration, are observed to be very painful.*

3d. Is there then no debility of pulse from simple plethora? Such a case would be a true grade of apoplexy: now apoplexy does not take place from the effect of an inflammation of some part remote from the head; the influence which the brain receives from a considerable inflammation of the lungs, has a tendency to increase its action. Therefore, we often see high colour, mobility of the features, loquacity, delirium and convulsions. When torpor shows itself consecutively, it forms one of the cases of excessive suffering of the lungs, and, as such, is often a forerunner of death. But besides this, the individual who, from cerebral plethora, is disposed to apoplexy, and who could alone furnish the example we require, is not in general attacked with pneumonia, because all the extremities of the nerves are already in a benumbed state, and a lung must be extremely sensible to become inflamed. If, however, this complication took place, the weakness of pulse would be found complicated with somnolency, insensibility, and palsies or indolent convulsions: symptoms widely differing from that state of pain and anxiety which characterize the feeble pulse of excessive inflammation.

* A very extended dull sound from the diseased cavity, or from both, if the phlegmasia is double, is also a very valuable symptom.

It is therefore evident that in all cases of pulmonary phlegmasiæ with a slightly excited or even feeble pulse, in a strong person who has not been exhausted, bleeding may be resorted to, and even placed before every other remedy; but it is particularly from leeches and cups applied upon the most sensible part that the greatest advantage must be expected to be derived. Leeches are in general preferable, because, with tepid fomentations, the bleeding from the bite can be kept up for a long time, and this ought never to be neglected, particularly when there is a stitch in the side.

4th. I am acquainted with another variety of feeble pulse in strong constitutions; it is observed with those pains and coughs which depend on a contusion of the viscera. All contusions, either from a fall, or from percussion, or from pressure, which leave pain have left a phlegmasia. We have observed in the chapters on pleurisy several examples of the danger of these pains from contusion.

They must be treated with more attention than would be given to a cold; but should blood be taken from a man who has only a slight pain in the chest, who has neither dyspnœa or cough, and whose pulse does not vary from the natural state? Why not, if it be the most certain way to cure him? Bleeding debilitates him a little, which is its greatest evil: the pain may conduct him to his grave. When these contusions are recent I order bleeding, in conformity to general custom; afterwards I make repeated use of leeches and cups. If they are of long standing, these means can do no injury, and they add to the effect of those which succeed them.

Fourth Degree of Inflammation: Feebleness of the Pulse, Feebleness of the Individual.

Nothing is more common in the practice of medicine than the coïncidence of inflammation and debility; it must even be admitted as a principle, that phlegmasiæ are rather the appendage of weakness than of strength. In fact, phlegmasia is but a defect in the equilibrium of the sanguineous system. An athletic and sanguineous man will bear with impunity the action of cold and partial irritations, so long as he enjoys his usual vigour. Should he enfeeble himself by excesses, the same cause which formerly had no effect

upon him will now produce a violent concentration in one of the vital organs, and he becomes a prey to inflammation.* But the feeble and nervous man is always predisposed to it. There are a multitude of persons who take cold from the least exposure; there are others to whom cold gives sore throat, swelling of the face, rheumatic pains, colics, &c.: all these affections are to be ranged in the same category. They are inflammations, but they are not so intense, because the *raptus* which occasions them is weak.

Some distinctions must also be established between delicate persons who are attacked with an inflammation of the chest whichsoever may be the tissue affected, and who have not a large and hard, but rather a feeble and frequent pulse; 1st, when weakness is constitutional, as in individuals who are of a slender and relaxed tissue but who are well-nourished and are not exhausted by any secret cause, prolonged phlegmasia readily produces tubercles, or red induration, if the individual be improperly debilitated: nevertheless, a discreet use of sedatives and revulsives may still effect a cure in the course of time. 2d. But when the energies of the system have been gradually undermined or suddenly prostrated by a deleterious influence, the tissue of the lungs becomes impaired with astonishing facility. Strength is then necessary for the resolution of inflammation. This cannot be doubted.

I conclude from this, that blood ought not to be taken from feeble individuals, who have not a vigorous pulse. I cannot even approve of small local bleedings, unless when the phlegmasia is recent. It is by the concurrence of the means, the details of which we shall presently enter into, that we must endeavour to favour the resolution of such inflammations. But one of the most important points in the treatment is patience. A speedy resolution ought not to be expected; it can only go on slowly, and whilst it progresses, a new action of the cause which produced the phlogosis, will be sufficient to renew it.

The second series of antiphlogistic means, is composed of sedative or refrigerant topical applications, and of mucilaginous and acidulated drinks.

* We must here understand those sudden prostrations which do not exhaust, and which allow of a speedy restoration when the function of digestion is not destroyed.

I. When, by bleeding, I have sufficiently reduced the activity of the arterial system and diminished the excitability, conformable to received usage, I resort to topicals. Struck with the general and unexceptionable fact, that all persons attacked with a pectoral phlegmasia have a paroxysm of cough at the moment of uncovering the chest, it appeared to me, that it would be beneficial to keep it constantly protected from the cold air. But bed clothes are not sufficient for this purpose, because the atmosphere gains admittance between them and the skin. It is necessary to have a garment to cover the chest permanently, and which will remain on when the patient changes his position or leaves his bed. Generally, blisters and rubefacients are employed. I formerly made great use of them; but, I was soon convinced, that it was frequently dangerous to use them at too early a period, in cases where the phlogosis made its appearance abruptly and violently. I have very often been compelled, in order to repair the injury which they had occasioned, to increase the antiphlogistics. I have, therefore, often given the preference to emollient topicals, applied over the whole anterior portions of the chest. If they are used warm, they have the advantage of expanding the capillary net-work of the surface and of inviting the fluids from them without irritating, like blisters, but rather by diminishing the tension of the sanguineous system, and the susceptibility of the nervous.

I not only hope to procure, by means of these emollient applications, a slight revulsion, by exciting the cutaneous excretions, but also to keep the skin that surrounds the suffering organ in a state of uniform and continual heat, soothing to the feelings of the patient, for I think that nothing more promotes the resolution of pectoral inflammations. I am persuaded that many thousand brave men perish in our military hospitals, who could be saved to their country and to their sovereign, if there were in the magazines, waistcoats of a thick and warm material, intended as bandages to the body for all those to whom topical applications should be directed to the external surface of the thorax. This garment would be so much the more valuable, inasmuch as the arms would be protected from the contact of atmospheric air, which cannot be accomplished by simple bandaging of the body. Deprived of this resource, I have resorted to immense cataplasms

and to emollient fomentations, when circumstances permitted their application and their being kept warm.

When these could not be employed except with great difficulty, as in temporary hospitals, I recommended the patients to wear a vest with sleeves, night and day, and to keep on their woollen stockings or socks.

It is from such precautions only, that we can hope to triumph over an obstinate pulmonary phlogosis. If they be neglected, especially in winter, constant relapses of inflammatory excitement take place in quick succession; and the hectic fever from pain, and afterwards that from suppuration, show that the fatal blow has been struck. It will be useless to multiply exutories, to be lavish of pectorals, vulneraries, detergents, &c. &c.; the evil is irreparable, for every lymphatic fasciculus which has partaken of the tubercular degeneration, must terminate in complete disorganization.

It is solely by a multiplicity of trials, that the efficacy of a curative method can be determined. Without, therefore, venturing to infer too much from success, already, however, considerable, I invite those of my brethren engaged in private practice, to order their patients, in all cases of peripneumony and pleurisy, in severe catarrhs, and even in trifling coughs, when they occur in individuals of delicate constitutions, to cover their chests, especially during the cold seasons, with flannel waistcoats and warm cataplasms and fomentations.

It is unnecessary to add, that the other parts of the body require to be equally excited by a gentle heat; for, if the feet suffer from cold whilst the chest is kept warm, complete resolution cannot be expected.

According to the principles we have adopted, general tepid baths must be of service in phlegmasiæ of the chest. They are indicated in fact, but they will only be useful, provided, 1st, they are not employed until after the arterial action shall have been reduced by bleeding; 2d, they must not exceed in temperature, or at least but little, that of the skin; 3d, the patients be not exposed to the cold on leaving the bath.* The dressing,

* Warm baths often occasion oppression and dyspnœa, in pectoral phlegmasiæ, which forbids the constant use of them; but, they may sometimes produce a happy revulsion. In every instance they must not be had recourse to,

therefore, which is to keep up the heat and perspiration of the chest, must be immediately replaced, and the patient covered as he was previously; but no endeavours ought to be used to excite profuse sweats. If nature produces them, and they appear to afford relief, we must be satisfied with encouraging them by demulcent drinks, without oppressing the patient with the weight of bed-clothes; otherwise he would be enfeebled from the discharge.

It is well to observe, that warm topical applications are only proper during the cold seasons. The good effect I obtained from them in Belgium, in Holland, and in Germany, induced me to use them at Friuli. I found them equally beneficial during the winter; but, when the atmospheric heat became constant and oppressive, they produced debilitating sweats, and an eruption of red pimples, accompanied with violent itching, which only added to the general irritation. Hence I was obliged to abandon their use; I replaced them by tepid fomentations of nine parts of water to one of vinegar, and by sponging every part of the body with this mixture. But I ought to state that this method is only suited to the acute stage of inflammatory peripneumonies, which seldom occur in warm weather. Individuals having a chronic cough, in whom the power of respiration begins to fail, would not derive any benefit from it, and I have not dared to repeat the experiment often.

With topical remedies, which relax the cutaneous tissue, must be associated internal medicaments, which produce the same effect throughout the extent of the digestive canal, and which, by their introduction into the sanguineous vessels, may also contribute to the destruction of the inflammatory erythema. This effect may be obtained from any of the vegetable gums and mucilages, dissolved in a large quantity of water, or in the form of a loch, and modified, as recommended in the treatment of catarrh, (p. 132.) Thin mucilaginous drinks, made of a decoction of the roots of marsh-mallow, a weak infusion of flax, of quince, or guava seed, a solution of gum arabic, may, when the febrile heat is considerable, be edulcorated with some acid syrup, such as the lemon, currant, or raspberry. Acids would not be hurtful in such cases; they are the

until after sufficient bleeding. It is the same with respect to ice, a remedy which did not answer the expectations of the Brunonians.

more grateful to the patient, inasmuch as they correct the nausea occasioned by the constant use of mucilages. On this account I would recommend the above-mentioned ptisans to be occasionally changed for a decoction of barley, of apples, of fresh figs, of dates, and other muco-saccharine substances which have no irritating property, and many of which have a slight acid quality, very pleasant to the parched palate of the sick. We would also recommend, in order to complete the treatment of acute phlogosis of the pulmonary organ, that attention should be paid to having the drinks given warm in winter, cold in summer, and always in small quantities, particularly when they are mucilaginous, for they require a kind of digestion which, should it become difficult, would have a tendency to revive the general susceptibility.

This reflexion induces us to think that the most complete abstinence should be observed during the acute stage; broths even should not be permitted until the phlogosis is on the decline.

The third series of antiphlogistic means, or that which is composed of excitants, should not be resorted to until the nervous and sanguineous erythema has been greatly subdued by the debilitating means recommended in the two preceding series.

1st. The first stimulants which are to be resorted to in the treatment of phlogosis of the lungs are rubefacients and blisters. The humoral pathologists make use of them to evacuate the humour which they suppose to be in the chest. The vitalists propose to substitute, by means of them, an external phlogosis unattended with danger, for an internal one which is very pernicious. Neither have much dread of the irritation which must be the result; and although they use this remedy daily in fevers with debility, with the view of reviving the powers of the system, they do not hesitate to apply them to a severe peripneumony, immediately after the first or second bleeding. However, many judicious practitioners, at the head of whom stands Baglivi, have proclaimed the bad effects of blisters, *(De Usu et Abusu Vesicantium,)* in inflammatory diseases, and expressly recommended that they be not resorted to until after the patient has been reduced and tranquillized. They are even of opinion that a demulcent drink should be prescribed whilst the blister is drawing, in order to moderate the too active stimulus of the cantharides. The Brunonians, who consider blisters only as the means of reanimating the general excitation, exclude them without any kind of reserve

from the treatment of sthenic diseases, and consequently from that of peripneumony, which, according to them, is always of that number. As, however, neither can deny the good effects which are obtained from them in that disease, they endeavour to reconcile the facts by refusing the name of *pneumonia* to all inflammations of the chest in which blisters may have been beneficial, and by giving them the name of *catarrh;* an affection which they have struck from the list of inflammations to form one of simple local debility.

A truly physiological physician, a judicious observer, a stranger to all party system, an enemy to the vain subtleties of the schools, will confine himself to the enunciation of the simple fact, by saying that when the excitability of the sanguineous and nervous systems is carried to a very high degree, all ulterior stimulation necessarily adds to it, and becomes highly injurious. He will readily conclude that blisters could not act as revulsives until the period when the general susceptibility is so much weakened that a phlogosis of the skin does not become an additional stimulus to that of the lungs. He will then only have to accustom himself to distinguish, by the usual signs, the degree of susceptibility in which an artificial inflammation of the skin augments the preëxisting inflammation of the lungs, from those in which it becomes a remedy by producing a fortunate revulsion, and by justifying the aphorism of the divine sage, *dolor dolorem sedat.*

Whenever phlegmasia is not attended at its commencement with a very hard pulse, and the individual does not appear too excitable, I resort to a blister immediately after the bleedings, (when they have been thought necessary,) and I apply it upon the most sensible part of the chest. But in very sanguine and nervous patients, I first make use of emollient cataplasms, particularly in the spring, and in many instances they have proved so beneficial that I have been enabled to dispense with the blister which I had reserved for the next day. In these cases, the relaxation of the cutaneous tissue and the augmentation of local perspiration which results from the use of the emollient topical applications, cause an actual derivation, whilst the great relief obtained by their soothing heat and by the impression of the mucilage upon the nervous papillæ of the skin, diminish the painful vibrations of the nervous system and disposes the organism to a relaxation favourable to a return of the equilibrium.

When the phlegmasia has broken out with violence, and the emollients have had no effect, (they never can do harm,) or when they have not been sufficient to dispose the phlogosed viscus to resolution, I embrace the first moment of *collapse* obtained by bleedings and acidulated emollient drinks, to apply a blister plaster, always as near as possible to the part affected. If the irritation appears increased, I employ, in addition to internal antiphlogistics, emollient fomentations on the fresh sore. I have often obtained by this practice an amelioration which I had not hoped for on perceiving the bad effects of the topical irritant. I have made the same experiment upon the redness which follows the application of mustard, from which there sometimes results an appearance of phlegmon in individuals who are irritable and sanguine.

After the period of general excitation is entirely terminated in inflammations of the lungs, that is to say, when they continue beyond twenty days, the exciting causes no longer acting, if the pulse remain hard, the heat ardent, in a word, even if the case be one of *pneumonic phthisis*, the time for emollient topicals is not yet gone by. But, if the pulmonary irritation become in a measure organic, only feebly excites the sympathies, if there only remain a tenseness of pulse, a moderate heat with exacerbations at night or from the effect of stimulants, whatever may have been the duration of the disease, artificial inflammations are indicated and will very often succeed, provided they are assisted by the other means. If the rubefacients still appear to irritate too much, they can be alternated with emollients, or these last may be used to allay the irritation which the former have produced. Can the practitioner hesitate to recur several times, from stimulants to sedatives and from sedatives to stimulants, when nature herself ordains these changes by the changes she has given to the symptoms; since the caprices and intemperances of the sick, or the moral influences from which they cannot abstain, always produce irregularities in the succession of the morbid phenomena? This reflection recalls to my mind all the individuals affected with chronic catarrhs and pleurisies, whose accidental exacerbations of fever and dyspnœa I allayed by diet, by sedative drinks and topicals, again to return to the revulsive, derivative and slightly excitant method. (See the *treatment of catarrh and that of pleurisy.*)

When rubefacients, such as mustard, horse-radish, black soap, pepper, resins, pungent essential oils, mezereon, euphorbia, tithymalus, clematis, &c. &c.; or vesicatories, such as boiling water and cantharides, which are superior to all others, have not produced the desired revulsion, it is in general dangerous to continue their use. If the pulmonary irritation depend entirely on habit, they would only increase it, by adding to the general susceptibility. A repetition of rubefacients weary the sick; they render patients restless, morose, and occasionally produce phlegmons and extensive collections, which may, it is true, displace the irritation, but which most frequently only increase it. If it be obstinately determined to keep up a suppuration, through their means, they become still more injurious to the nervous system, the papillæ of which are exposed to their contact.

A better effect is then obtained from artificial phlogoses, produced by division of the skin and suppuration of the cellular tissue. They should be made with the actual cautery, with moxa, or with escharotics, when the general irritation is not considerable. When on the contrary, the patient is known to be very nervous, the preference should be given to a simple division of the integuments with a bistoury.

In some instances cures have been effected by a repetition of moxas upon the chest. This method may be attempted, but we must be cautious not to recur to it, if it appear to aggravate the symptoms.

The same may be said of issues, of setons, and of all artificial suppurations; all these can only be kept up by a constant stimulation of the extremities of the nerves, spread over the surface of the wound; there are many individuals who cannot endure them; there are others, who do not complain, but in whom it may be perceived that the chest suffers from their use. There should be no hesitation in discontinuing them.

Some physicians, who reflect little on the subject--and who have practised only in cold, damp climates, or in large cities, where the inhabitants are generally of a relaxed tissue, not very sanguine, and frequently emaciated by a premature abuse of the passions—will perhaps find my fears exaggerated; to such physicians I would reply, that having accompanied individuals of the character I

have described into hot and dry climates, I there perceived that they were altogether different from what they had been in their own country, and from what I had observed them to be in the damp and foggy atmosphere of Holland; that it is always advantageous for a medical man, who may be attached to the army in the warm latitudes of Europe, as well as in the polar regions, to be acquainted with every possible case; and finally, that this nervous and sanguineous irritability, which will not yield to excitants, may be found and is found, very frequently, in every part of the globe.

It is particularly when sanguine irritation appears to be kept up by the presence of tubercles, that artificial phlogoses with suppuration of the cellular tissue, can act upon it with efficacy; but we shall resume this subject, when treating of the means which are considered as calculated for the resolution of tubercles.

II. Next to inflammations of the skin, we shall place dry frictions, those which are made with pieces of woollen, previously exposed to the fumes of incense, of benzoin, of juniper berries, &c.; frictions with æther, alcohol, volatile alkali, and essential oils, such as turpentine, and mustard pediluvæ; in a word, every mode of practice, of which the definite effect is to redden the skin and augment the energy of the expansive force.

The utility of these means is always subordinate to the degree of general inflammatory diathesis and nervous susceptibility; they are seldom proper during the acute period, unless it should appear necessary to excite the circulation, which may have been too much weakened by excessive losses of blood, by too strong an impression of cold upon delicate constitutions, and by some other similar circumstances. They are only admissible at the period when blisters can be endured without inconvenience.

When the disease has a tendency towards a chronic state, and the pulse is rather feeble and slow, than hard and accelerated—it is necessary, before employing general irritants of the cutaneous system, to obtain some information which may lead to an anticipation of their effect. If the patient be young, vigorous, fleshy, and high-coloured; if the vivacity of his feelings and of his actions, indicate that he is easily excited; we must not be in haste to apply friction to an extensive surface of the skin. The phlogosis, as yet confined to the pulmonary tissue, might, if the heart

and the arterial system received a fresh stimulus from the vellication of the cutaneous papillæ, become of a sudden considerably extended. These cases belong to the number, in which the weakness of the pulse corresponds to the strength of the individual. Bleeding and diet are sure to be efficacious; irritants may prove certain death. (See Pelletier, Case 58.) That case was only reported in order to furnish a striking example of this shocking truth.

Individuals with spontaneous hæmoptysis, whose sanguineous system is rather active, are generally in the same situation. Hæmorrhages begin by purely capillary phenomena; and it is very common for fever to develope itself, whilst endeavours are making to produce redness of the skin, by blisters, by mustard pediluviæ, by dry frictions, and whilst antispasmodic potions are lavishly administered. All these means could only be advantageous in the moderately sanguine and irritable temperaments, which we have mentioned as being subject to dry and very chronic phthisis. If they cure one patient by effecting a perfect revulsion, they immolate a great number by the stimulus which they give to incipient phlogosis, unless the excitement which they have occasioned, is fortunately promptly arrested by sedative antiphlogistics. Inflammation of the lungs, which commences by a hæmoptysis without fever, constantly becomes transformed into tubercular phthisis, and terminates fatally under the care of the most celebrated physicans, although it has been attended to from its commencement. In general, the pulse and heat increase towards the second or third day; as soon as the phlogosis is well established the sputa ceases to be bloody; purulent expectorations take their place and consumption begins.

These failures ought at least to engage unprejudiced men to vary their practice a little, and not to be hasty in administering to their patients restorative broths, generous wines, blanc manges, &c. with the view of giving them the strength which they had endeavoured to remove the preceding day, by bleeding and cooling drinks. For the same reason, they ought not to be so prompt in inflaming the skin with blisters, in increasing its sensibility, and in reddening it nearly throughout its extent, by frictions, sinapisms, irritating pediluviums, &c. A hæmorrhage, especially of the lungs, which is seldom copious, could scarcely be passive

the day after its occurrence;* and it is an error to believe that the debility by which it is hoped to arrest it, is capable of keeping it up. Protect the patient from the cold, moderately stimulate the skin by warm topical emollients, and even by mild irritants, with the view of maintaining the circulation and the excretions: but before you redden it severely, burn it, incise it, or inflame it, wait until the patient is so reduced that this practice will suddenly develope the energies which he still has *in potentia*. This development might give an impulse to the pulmonary irritation, which it may be no longer possible to repress.

These reflections are not the product of a vain, heated imagination. It is from having been compelled to lament the fate of a great many of my friends, and contemporaries, carried off by pulmonary phthisis, and from having seen the sick treated by the stimulating method perish in the hospitals, that determined me to try the opposite treatment; and I very soon learned to abandon my fears of the consequences of debility in the commencement of the disease, and before the powers of the system had been consumed by hectic fever.

Severe, dry, aromatic frictions, vellications, and rubefactions of the skin, sometimes give rise to eruptions of the herpetic or psoric form, to furuncles, and to small purplish-red pimples, accompanied with excessive itching. These kind of local affections may ultimately be beneficial to the patient, particularly when the irritation has been the consequence of the retrocession of a similar affection, provided the excitement of the system has been abated by sedative means; otherwise they will most frequently add irritation to irritation, and hasten the progress of the disease. Revulsions effected by violent means in the acute stage of a pulmonary phlegmasia, are very seldom complete and curative.

It is now evident, 1st, that artificial irritations of the skin cannot always be useful until the perfect cessation of the reäction; 2d, that in the acute stage, and at every period approaching its attack, it will be prudent to confine the treatment to less active methods, such as light frictions with the hand or

* It is sometimes, and even continues until death, when it takes place at an advanced period of the disease. These catastrophes are not frequent in primitive hæmoptysis. Moliere, however, died in this state.

some soft material, &c.; 3d, that the more powerful ought to be reserved for the more advanced periods of the disease, when there is only frequency of pulse without heat of skin, and the power of breathing is feeble; 4th, that their employment must always be suspended when they occasion troublesome eruptions, and which are capable of increasing the phlogosis, or of hastening the prostration, by wakefulness, and by pain. Finally, in every case of evidently asthenic phthisis unaccompanied with fever, dry baths of heated sand, of the pressed skins of grapes, of salt, &c. may be advantageously associated with all the mechanical or chemical means which are used to increase the circulation in the capillary vessels of the surface, and to facilitate the depuratory excretions.

III. The third species of excitants that may be employed with success for the removal of chronic inflammation of the lungs, are given internally; they are *antispasmodics*, *sudorifics*, and *diuretics*.

As soon as the pulse has been rendered soft, the heat moderate, and the nervous susceptibility been tranquillized by the use of the various depletory remedies; in short, when the patient is in the state in which we have previously mentioned, that he ought to be, in order to bear with impunity powerful irritations of the skin, it is then justifiable to resort to diffusible stimulants, and to those which invite the action of certain secretories.*

The diffusible stimulants designated by the general title of *antispasmodics*, are *opium*, *ether*, *musk*, *castor*, *amber*, *fetid gum-resins*, and all the vegetable aromatics.

Of these, we obtain from *opium* the happiest effects. Its narcotic property affords the advantage, by lulling the sensibility, of suspending the cough, the paroxysms of which contribute to prolong the pulmonary irritation; but as it increases the fullness and strength of the pulse, it cannot be proper as long as the inflammatory diathesis is general. It is given with great advantage in the evening after bleeding, and with a copious use of aqueous and emollient drinks. I have administered it in substance, and

* At present, these means appear to me to be useful only when the irritation is purely catarrhal, that is, when it is without fever, emits a clear sound, and is accompanied by an excessive mucous excretion. Moreover, symptoms of gastritis and of gastro-enteritis must not exist.

in Sydenham's tincture. This last mentioned formula, which admits of its being combined with emollients, is often to be preferred whenever a return of the general inflammatory symptoms is to be feared. If there be a disposition to perspiration, opium will powerfully assist it, and may aid in the sudden resolution of the phlegmasia. I have seen several striking examples of it. It is useless to add, that should it aggravate the symptoms, it must be discontinued; for it is a proof that the susceptibility has not yet been sufficiently diminished.

Ether is generally combined with the tincture of opium, to form an antispasmodic draught. It is proper under the same circumstances as the opium. It requires, particularly, that the stomach should not be too irritable or inclined to phlogosis. In that case it occasions severe pain in the epigastrium, which is readily relieved by acidulated mucilaginous ptisans. A mixture of these two medicines is particularly applicable to obstinate coughs, with tickling of the larynx, without general inflammatory symptoms, and it may be recurred to at every period of the disease when this combination of symptoms presents itself. We cannot here determine the exact dose. We must commence by the smallest and increase it, until some effect is obtained. Every physician should pursue this course, that he may learn to appreciate the susceptibility of different temperaments.

Musk is considered as a powerful antispasmodic. Its scarcity in military hospitals has prevented me from making much use of it. I have observed in my private practice, that it was admissible only when there was no plethora, and that it did not agree with a great many patients. Moreover, the affection which we are now describing is not that in which musk has been found the most efficacious. It should, however, be used if the pectoral excitement appears to be the result of violent convulsions and hysterical spasms.

I have never found any good effects from *camphor*. It is a pungent essential oil, which renders the mouth dry, and destroys the appetite. It is not proper, unless the sensibility has been blunted by a combination of adynamic fever, or by the impression of the deleterious virus which produces contagious *typhus*.*

* This is another assertion made under the influence of authority. All physiological physicians now reject these methods in the cases under consideration. (See the *Examination of Medical Doctrines.*)

Castor, amber, assafœtida, &c. may be tried when the idiosyncrasy rejects the other antispasmodics, or when the patient is satiated with them, and in the case in which we particularly recommend musk.

Assafœtida appears to me the most energetic, and perhaps the most proper for those morbific concentrations, which are referable to irritation of the organs of generation in women, without general phlogosis.* It may be given in pills, or in enema.

Vegetable aromatics are employed in infusion, or the water distilled from them may be used, administered in a proper vehicle. I have given this latter with the most success. A few drachms of simple balm water, or orange-flower water, in a julep containing gum tragacanth, ether, laudanum, and syrup, makes a very useful antispasmodic potion for abating the frequency of the paroxysms of cough, and for restoring the tone of the stomach, weakened by emollient drinks.

There are but few *sudorifics* which are adapted to recent phlegmasia of the lungs unaccompanied with excitement of the arterial system. The medicines which I have just pointed out as antispasmodics, and especially opium, often excite diaphoresis. Nevertheless, they may be combined with a weak infusion of elder, of poppy, of sassafras flowers, or with a ptisan of the roots of burdock, *(Arctium lappa,* L.*)* and scabious. These drinks may be rendered more active by the addition of the syrup of pinks, or any other possessing similar virtues, with a few drops of liquor ammoniæ, or by giving simultaneously half a drachm, or a drachm of the extract of juniper, or of theriac, with half a grain of opium. But I again repeat, all this requires the absence of fever, and a warm atmospheric temperature. These remedies must be discontinued the moment an elevation of the pulse, and of the temperature of the skin, an increase of dyspnœa, and a derangement of the appetite are observed, and even independent of all this, when we do not, after some time, find them to be productive of benefit.†

Diuretics ought only to be used as a last resort. It is not necessary to force the kidneys to an extraordinary secretion; it could only be accomplished by fatiguing the stomach by the

* And especially without gastritis.

† Therefore we shall often be obliged to desist. See besides, the note to page 284.

volume and weight of liquids, as well as by the acrimony of the particles, which they must contain. It will suffice then to add a small quantity of the nitrate of potash to the drinks which may have been selected, or to substitute a few glasses of clarified whey, or weak lemonade, with cream of tartar. Those roots called *aperitive* would not be proper here. A weak infusion of juniper berries, which produces some effect on the skin, and on the kidneys, may be substituted for them with advantage. Sarsaparilla ptisan, and exotic sudorifics are employed more properly in the treatment of dry and scrofulous phthisis.*

The most proper Regimen for assisting Antiphlogistics.

The greatest possible sagacity in applying the means just recommended for the cure of phlogosis of the lungs would seldom produce any effect, without the coöperation of regimen. Therefore, whilst the skin is protected from the impression of cold, and the lungs from all mechanical and chemical irritants which fatigue them; whilst every sensation and every voluntary act which might terminate in the same result are prevented; whilst bleeding and sedative drinks are administered; whilst the skin is gently fomented, or whilst it is irritated, either with the intention of reddening, of inflaming, or of producing a suppurating sore; whilst the antispasmodics and stimulants of the different secretories are tried; in a word, whilst there is any hope of success in resolving the pulmonary inflammation in time to prevent the formation of tubercles, the regimen which we shall now prescribe must be strictly adhered to.

No one can doubt that the most strict diet ought to be observed in the first stage of violent inflammation. But when it has become chronic, when that frequency of pulse which I call *hectic from pain*† exists, it is no longer necessary to be so abstemious in the use of food. However, every individual who retains a frequent pulse, heat at night, a moderate cough, after having experienced more violent symptoms, still labours under actual phlogosis of the lungs. It must be cured. If it depend on tu-

* They are of no greater advantage. (See *Examination of Medical Doctrines.*)

† Or rather hectic from inflammation, which has not yet produced disorganization.

bercles in a considerable state of development, this will not be effected; but if the sanguine phlogosis be simple, it will be accomplished; and to be assured of it, it will be sufficient to submit the patient for several days to as rigorous a diet as that employed by *Valsalva*, in his anti-aneurismatic treatment. If, at the same time, the other antiphlogistic means are judiciously applied, the lungs will be restored to their functions in a few days.

When by such means, pulmonary inflammation is completely removed, which is denoted by the cessation of the cough and frequency of pulse, if these return whilst allowing the patient the necessary quantity of food for sustaining his strength, it will be necessary to examine whether some one of the precautions recommended have not been neglected; for example, whether the disease has not been renewed by cold. When it can be attributed to this cause, the precautions must be redoubled; but if it cannot be imputed to this, there is much reason to dread that the tubercles are already too far advanced to obtain a resolution of them; but we ought not to be discouraged by the first attempt.

It is at this period when it is probable that tubercles exist, and also probable that they are not yet transformed to a pulpy state, that it is very advantageous to nourish the patient by light lacteous and farinaceous drinks alone. No fear should be entertained of producing a prostration from which the patient cannot be raised, or which is opposed to the resolution of the inflammation: the fear of debilitating has cost, and will still for a long time cost, numerous lives.* They very seldom die at the adult age, and when there is no febrile contagion, from mere loss of strength, and they often perish, because an organ is destroyed by its accumulation. Remove the phlogosis which renders the lung incapable of communicating to the other structures its share of vivifying influence and which prevents it from perfecting sanguification, and the stamp of languor and debility which its state of suffering gave evidence of in the exercise of the necessary pursuits of life, will be effaced.

I have constantly observed, that when a person in good health, but not enjoying a strong constitution, contracts an inflammation

* A truth which is daily confirmed by the obstinacy with which the vain and the indolent persist in disregarding the experiments upon which is founded the physiological doctrine.

of the lungs, it is of advantage to weaken him still more in order to resolve it. The individual who shall have been debilitated in this manner by a local bleeding, and if the pulse permitted it, by diet and mucilaginous drinks, will sooner regain his natural strength, than he who has been treated in an opposite manner, because the inflammation will be promptly arrested, whereas in the other it will be prolonged a greater length of time. Whilst succulent food is freely dispensed under the pretext of reserving the powers of the system or of exciting them, for the removal of an asthenic inflammation of the lungs, the patient it is true, preserves a good complexion, he scarcely loses his colour; but the muscular strength does not increase, the pulse is hard, the skin is warm, the cough persists, and if he has the misfortune to have a lymphatic system disposed to engorgements, tubercular nuclei form, which will terminate in phthisis.

It is to be distinctly observed, that I am not speaking of those in whom the inflammatory symptoms have been sufficiently intense to be termed *hypersthenic;* for no one would think of adding to the stimulus which already afflicts them; but I allude to those who have a cough or a pain in the side, with an expectoration, slightly, or not in the least bloody, and in whom the pulse is of a moderate force and the skin of a slight red tinge. If bleeding is frequently required by them, as we have before suggested, there will be the more necessity to observe strict caution respecting the quantity and quality of their food. This limited degree, and even less than it, is often found in the wards of military hospitals, and it was there that I was enabled to appreciate all the advantages of the depleting method, during the early stage of inflammation of the chest.

When the acute stage of inflammations has passed by, the system must be reduced, particularly by the selection and quality of the food, for the stimulus of exciting medicines differs greatly from that of food. The former irritate the stomach or the skin, and by that means reänimate organs whose action alternates with that of the lungs, and favours certain evacuations, from which a fortunate revulsion may occasionally result. The latter, at first, accumulate the blood in the lungs, which is the immediate effect of digestion; and afterwards, having reached the vascular system, surcharge and distend the lymphatic fasciculi of an inflamed focus. In my opinion, it would be difficult for the continual repe-

tition of such an exciting cause not to accelerate the so much dreaded tubercular degeneration.

When the irritation is violent, nature guards against this unfortunate result, by destroying the appetite; but when it is more mild, the patients often have a strong desire for food. I have always found that there was no danger from absolutely depriving them of it, so long as the frequency of cough, the acuteness of pain, the hardness and frequency of pulse and the heat of skin, indicated that there was little disposition in the phlogosis to resolution. Those who clandestinely procured food, always retained the inflammatory symptoms a longer time, and frequently were ultimately affected with consumption. There were others to whom I granted food, in order to test its effect, and they, like those who secretly satisfied their appetite, were always more difficult to cure, or became incurable.

I therefore would recommend to all my fellow practitioners, to attempt the cure of incipient phthisis in individuals who are not exhausted, by a simple milk, vegetable and farinaceous diet; I can even fearlessly add, that without its coöperation, very few cures will be obtained, notwithstanding the use of the most boasted specifics; and that with the observance of it, all medicaments may be frequently dispensed with.

It now only remains for me to enter into a few details for the purpose of facilitating the application of the precepts, which have hitherto only been indicated.

By means of two pints of new milk per day, with two or four ounces of bread for the sole nourishment, I have succeeded in curing in ten or twelve days, both in the hospitals and in my private practice at Udine, a great number of obstinate coughs, of from three to four months continuance, and which had resisted repeated blisters, pectorals and even issues. When the cough and dyspnœa had ceased, and the pulse had lost its tenseness, I allowed the quantity of bread, which was put into the milk, to be gradually increased; and, after thirty or forty days, I gradually allowed the patient to return to his accustomed food.

I have obtained the same result from the use of thickened milk, but I have not ventured to trust to the use of rice, whenever the pulse was in the least hard; I think it too nourishing; I reserved it for patients already exhausted and who could not bear animal food.

Whenever individuals threatened with phthisis pulmonalis have an obstinate cough and a tense pulse, there should be no hesitation in selecting a diet suited to their taste and to the idiosyncrasy of their stomach, always, however, composed of milk or of farinaceous vegetables. The quantity to be taken each day should always be determined either by weight or measure. At the commencement it will be necessary to be rigid in the diet, in proportion as the pulse is tense and the colour high. It is very important that the patient should suffer a little at first from hunger: it is the best means of restoring to the lymphatic system all its activity. A new impulse may also be procured by some of the diuretic medicaments before mentioned. Therefore the appetite may be usefully cheated with extremely clear whey, to which nitre or cream of tartar may be added, or with a decoction of nitrated barley-water, &c.

As long as the patients do not loathe milk, it should have the preference. Its digestion may be facilitated by the addition of a little orange-flower water, cinnamon water, &c. by diluting it with a light infusion of anise, or with lime-water, *when the stomach is not very irritable.** With some such seasonings, the stomach, which cannot support a milk diet, may be made to bear water-pap, gruels, and the lightest animal jellies.

Whatever may be the preparation adopted, it should be continued unmixed until the entire disappearance of the attack. It would be useless to order milk, night and morning, to persons in the first stage of the disease, if they are permitted to satisfy their appetites with fat soups, the wings of chickens, &c. and to comfort their stomachs with some glasses of good wine.

Application of the Means recommended in different inflammatory Phthises, until the cure, or until the complete Development of Tubercles.

I. *Pneumonic phthisis* admits of the use, amongst the antiphlogistic means, of those only which are directly debilitating. The revulsives which are adapted to it, are those which relax

* In an opposite state of this viscus, and in fact in most of the cases of pulmonary irritation, I prefer barley-water or a solution of gum arabic, or even pure water, to dilute the milk and facilitate its digestion.

the vessels of the surface without irritating them: the regimen ought to be of the strictest kind.

II. *Catarrhal phthisis* requires a combination of sedative and revulsive antiphlogistics, a regimen severe in the commencement, and afterwards nourishing without being stimulant. The means particularly adapted to it have been detailed under the article appropriated to an account of its treatment.

III. *Pleuritic phthisis* requires the same. The detail of the treatment best calculated for preventing pleurisy from producing tubercles, may be seen under the treatment of that disease.

IV. *Phthisis depending on the occupation and mode of life,* requires that the antiphlogistics should be proportioned to the forces and degree of the phlogosis, which vary exceedingly, according to temperament, to the mode of life, and to the activity of the irritating cause. Thus, the vigorous and intemperate fencing master ought to be reduced more promptly and more boldly, than the sedentary workman who inhales particles of wool, mixed with the dust of the apartments and the vapour of dyes, in a very confined manufactory. The first would require emollient revulsives and the most severe regimen: the second would do better, as soon as the phlogosis has put on a chronic appearance, with food of a more substantial nature, with rubefacient and phlogosing revulsives, and from exutories formed by dividing the integuments. A robust and muscular man, who has wasted away and contracted a pulmonary irritation by breathing the heated vapour of a furnace, of a foundry, or of a forge, will derive great benefit from milk, with the mildest farinaceous articles, from mucilaginous drinks, from baths and emollient fomentations; whilst the man of letters, whose chest has become engorged in his cabinet, under the influence of a purely nervous erythism, and small, delicate, hysterical women, in whom every excitement produces pain in the stomach, and a sense of suffocation, ought to be kept a very short time only upon the first series of antiphlogistics. They will require the prompt use of antispasmodics, of sudorifics, and of revulsives, equally emollient and irritant; for their extreme susceptibility frequently resists the good effect of suppurating blisters, of moxas, and of setons.

The chemist, the metallurgist, who inhale mineral acids, metallic oxides, and gases, more or less unfit for respiration; plasterers and stone-cutters, whose lungs are filled with the vapour

formed by foreign bodies—will be inconvenienced by every irritation which is too actively repeated in the pulmonary tissue. Thus, vesications, rubefactions, and cauterizations of the chest, which would be of advantage to the pale, ill-formed shoemaker, and to the lymphatic female who leads an inactive life behind a counter, would not benefit them as much as cataplasms, emollient fomentations, tepid baths, and the vapour of warm water, which would be often injurious to these last. Those who by their profession are at the same time exposed to the impression of an irritating vapour and to the suppression of transpiration, such as bakers, will frequently receive more advantage, after the first period of general irritation, from sudorifics, baths, frictions, rubefacients, and blisters, than from emollient fomentations; on the contrary, the drunken innkeeper, disposed to abdominal phlogoses, who may have caught cold from descending into his cellar—and the plethoric butcher, who may have contracted an obstinate cough from having remained exposed, half-dressed, in a current of air, after being heated with his work—ought to be kept constantly upon a very severe regimen and cooled and relaxed for a long time, previous to being stimulated with any degree of energy, either externally or internally.

These examples will be sufficient to enable the intelligent practitioner to draw the distinctions necessary for the just application of the means which we have recommended for the cure of phlogosis of the lungs which threatens to degenerate into phthisis.

V. *Phthisis resulting from continued fevers*, or rather the irritations of the chest which succeed to these diseases, and which by their obstinacy excite fears of tubercles, require that we should establish some distinctions. 1st. If the phlogosis be violent and the individual not much prostrated, an antiphlogistic regimen of the most rigorous kind, especially low diet, although the cravings of the appetite should be great. In addition, revulsive means proportioned to the excitability of the patient. 2d. If the fever have produced great debility, if the inflammation be passive, obscure, or if there should exist a profuse expectoration, sudorifics, antiphlogistics, and irritating revulsives are strongly indicated; great care, however, must be taken never to increase by their use the febrile action, if any exist. The effect of all these tonics must be confined to the secretory or excretory capillary fasciculi, whose functions ought to be accelerated, in

order to break up the habit which determines the fluids to the lungs. In some cases of this kind it has been found more advantageous to give an astringent and sedative tonic, the effect of which is directly opposed to that of the revulsives we have just mentioned, as the cinchona. Morton mentions many surprising cures, accomplished with this bark, of obstinate coughs with hectic fever and very abundant expectoration, resembling suppuration. Many practitioners have imitated him. I have myself cured a very copious puriform expectoration, with a few glasses of an emulsion of bark, the consequence of an abortion produced by a moral affection, and followed by two or three suppressions of the lochia, and with hectic fever and dyspnœa sufficiently violent to create fears of phthisis. But these cases ought to be now generalized, and I think it can be accomplished in the following manner.

Tonics, and especially cinchona, should be tried in order to appease pulmonary irritation, and to arrest an abundant expectoration—1st, when they follow diseases which have produced sudden debility, such as adynamic fevers,* excessive hæmorrhages, &c.; 2d, in persons of a soft, transparent, lymphatic tissue, and whose stomach is but slightly irritable; 3d, in cold and damp countries, and in large and populous cities, rather than in warm latitudes, elevated grounds, and in villages.

It is said that one of the principal characteristics of this species of catarrh, is that it soon reaches the stage which resembles a suppuration of the lungs, without having passed through the usual gradations of genuine phthisis; but this character is inaccurate, inasmuch as phthisis is not a uniform disease. Besides, it is not sufficient to lead to the employment of cinchona and other tonics, if the circumstances just pointed out are not found united with it. We have observed true tubercular phthisis, eminently inflammatory, rapidly progress with a copious expectoration. Such was Roquet, (Case 37,) and we could alleviate such patients only by antiphlogistics.

* This is supposing that the gastro-enteritis has entirely ceased; but the organs of digestion too often retain an irritability which resists the use of tonics. It is because they are used too soon and still persisted in, that the convalescence of supposed adynamic fevers is so much prolonged. Moreover, the second case given above, sufficiently corrects whatever may appear too vague in the first.

We know, besides, that varico-aneurismatic men are subject to very copious expectorations of a mucus precisely resembling the suppuration of phthises. Now, if a man of this constitution should be suddenly attacked with a violent catarrh; or if he should be in the convalescent state of a continued fever, like Payo, (Case 8,) he will, in a very short time, appear to expectorate pus in profusion; it would not, however, be from the circumstance of the invasion or from the rapidity of the progress, that it would be proper to regulate the use of the means pointed out, but rather upon the examination of the constitution and upon the actual state of the strength of the system.* If the individual with a varico-aneurismatic centre of circulation is sanguineous and robust, as is often the case, and not yet prostrated by a long illness, it is by bleeding and strict diet that he will be cured; and permanent and diffusible tonics of any kind whatever, will not be proper until he is debilitated, relaxed, and inclined to œdema;† I have become convinced of this from a great number of facts attentively observed.

I request physicians never to lose sight of this varico-aneurismatic idiosyncrasy, which I have repeatedly placed before them. It will often afford them an explanation of those supposed cures of suppurating phthises and of purulent expectorations without ulcers in the lungs, which have been pointed out by Dehaen, and which I have placed amongst my *Researches upon hectic fever, under the title of hectic from irritation and weakness of the mucous membrane of the bronchiæ.*‡

As to vomicæ and suppurative abscesses of the parenchyma in consequence of fever, never having verified them, I shall dispense with speaking of them. It appears to me, however, that all I have said here of the other cases would, in a therapeutic relation, be applicable to them.§

* This proposition is too general: it should be upon the state of the powers of the stomach, that is to say, upon its irritability, and upon the influence which the stimulations given to it by the use of tonics exercise upon the pulmonary structure.

† See the preceding note: for œdema may here coëxist with a state of gastritis which renders tonics very dangerous.

‡ Amongst the cases which I have given, there are some which ought to be attributed to catarrhs.

§ I have proved them incontestibly since that period, and I have convinced

Pectoral irritations threatening phthisis, which appear to be the effect of intermittent fevers, come within the cases which we have just pointed out, when the accessions are suppressed. If they still persisted, or if they reäppeared, it would be necessary to arrest them as soon as possible, because they have a tendency to increase the suffering of the lungs, as we have proved elsewhere. Will cinchona always be the best remedy? I shall reply to that question when treating of gastric inflammations.

VI. *Scorbutic phthisis*, or chronic irritations of the lungs modified by the scorbutic diathesis, whatever may be the degree to which it is carried, can only be cured by an antiscorbutic treatment. But a proper choice should be made from amongst the numerous methods to which that title has been given by medical authors.

If the irritation be considerable, and the strength but little exhausted at the period when the patient is attacked with the scurvy, heating antiscorbutics must, such as scurvy-grass, the ardent spirit extracted from it, horse-radish, and even water cresses, be carefully avoided; for the same reason, generous wine, alcohol, rum, the punch made of these liquors, bitter elixirs, alexipharmic electuaries, mineral acids and ferruginous preparations will not be proper. All these violently exciting remedies have a tendency to precipitate the organic actions, and do not add any actual power to the living tissues. Several authors have considered them dangerous in the highest stage of the disease. I think them calculated to accelerate the decomposition of the phlogosed fasciculi to which scurvy has extended.

If the phthisical patient attacked with scurvy be absolutely in a state of atony, without reäction and without any affection of the mouth, which could induce a belief that the diathesis had extended to the lungs, violent antiscorbutics may prove less dangerous; but sometimes the sensibility of the stomach excludes the use of them, as happened to Nourrisson, (Case 55,) who, languid and apathetic as he was, could never bear other antiscorbutics than milk and farinaceous vegetables. It will, therefore, be always more prudent to commence the treatment with these articles, es-

myself that hidden depositions may exist in the parenchyma, and that consequently all vomicæ cannot be reduced to a chronic pleurisy, with perforation of the pulmonary pleura.

pecially as they should form the basis of the regimen in all cases of phthisis. We should use at the same time the fresh juices extracted without heat from mucous, muco-saccharine, acidulous plants, abundantly provided with vegetable fluid, as it is, according to the fortunate discoveries of Dr. Keraudren, head physician of the French royal navy, in this immediate principle of vegetables that the antiscorbutic virtue resides.

This happy idea, which had forcibly struck me when that able observer communicated it to the Medical School of Paris,* appears to me still more so, since I have had occasion to verify its accuracy by experience. In March, 1807, the weather having been rainy and foggy for several weeks at Udine, in Friuli, many cases of scurvy began to appear in my wards; they increased in April to such a degree, that towards the end of the month, the scurvy became complicated with all the intermittent fevers which had been any time in the hospital, with nearly all the chronic affections, and in many convalescents from acute diseases.

Deprived of fresh vegetables, inasmuch as the environs of Udine are sterile, and we were deficient in infirmary foragers to send into the mountains, in order to collect them—I supplied my scorbutic patients for upwards of six weeks abundantly with lemonade, whey, bitter drinks, sweetened wine, soothing aromatic alcoholic draughts, a decoction of bark, astringent, vinous antiscorbutic gargles, in short, every thing I thought most likely to rouse the energy of the vascular system. I also endeavoured to procure for them proper nourishment, such as meat and herb soups, gruel, rice, potatoe flour and prunes. I could not afford them the least alleviation; many of them were in a critical state; three appeared to be past hope, when, during the early part of May, antiscorbutic juices were prepared. Wild endive and watercresses were all that were used, for sorrel is but little cultivated in that country. In two days there was a decided amendment; in eight days all the slight cases of scurvy had disappeared; towards the end of the month there was not one case of scurvy left; and of the three who had occasioned the most anxiety, only one perished, and that was Nourrisson, the phthisical patient whose case I have related. I must admit that the return of warm, dry weather, greatly contributed towards these cures; but the relief

* *Réflexions sommaires sur le Scorbut,* par Keraudren. Paris, an XII.

followed so immediately the administration of the antiscorbutic juices, although the patients took only four ounces per day, that I could not mistake their powerful influence.

The modification in the general treatment of irritations of the chest threatening phthisis made necessary by the coëxistence of scurvy, consists, in my opinion, in discarding violent irritants and warm sudorifics—in abstaining from blisters, rubefacients and cauterizations of every kind, for every phlogosis has a tendency to disorganization in scorbutic patients—in giving a little activity to mucilaginous and cooling medicines, by means of alcohol and aromatic waters—in aiding the lacteous vegetable and farinaceous diet, which we have recommended, by tonics, if the stomach be not too irritable, by a little pure or sweetened wine, by a bitter decoction, or by that of cinchona, either in emulsion, or combined with gum tragacanth, if necessary; finally, by choosing of the fresh vegetables, the preparation most likely to furnish the vascular system with a great quantity of the water of vegetation and of the muco-saccharine principle, without disquieting the principal organ of digestion. All the chicoraceous plants and fresh culinary roots and herbs, may be tried, under the form of salads, gelatinous broths, tender acidulous fruits, conserves, sweetmeats, finally, the extracted juices of endive, of sorrel, &c. to which, according to the irritability of the patient, a larger or smaller quantity of water-cresses may be added.

I refer to the numerous treatises which we possess on scurvy, for all that relates to the cure of the local affections; those who desire to correct the ideas which they may have acquired respecting this interesting disease, after having read other works, should attentively peruse the dissertation I have quoted.

VII. When pulmonary irritation, caused by the suppression of cutaneous affections, hæmorrhages, and external inflammations, is active, permanent, and gives rise to fears of phthisis, it ought to be treated by the strictest antiphlogistic measures. At first, the patient must be reduced as much as may be necessary by general or local bleeding, after which, recourse must be had to emollient revulsives, and early to irritants, the particular choice of which must be decided by the state of the patient, and by the character of the disease which has been repercussed. If the temperament is nervous and inflammatory, and the suppressed inflammation is from a violent and external cause, emollients

should be preferred, or rather they should be combined with irritants, as is advised by Dr. *Vauters, (du choix des exutoires,)* who produced a very copious afflux of serous humours, by a cataplasm containing pulverized cantharides. If, on the contrary, the inflammation be moderate, blisters and rubefacients of every kind will be proper to recall to the surface an erysipelas from an internal cause, an inveterate psoric or herpetic affection, and to reänimate in the white tissues of the articulations a rheumatic or gouty irritation. If successful, an issue or seton ought to follow the suppuration of the blisters, which can only be kept up by painfully irritating the cutaneous papillæ.

This order of means appears so much the more indispensable, as those individuals exposed to this variety of pulmonary phthisis, require, in order to remain in a state of equilibrium, the addition of a local stimulant to that which they daily receive from the surrounding external agents, and from those which penetrate into the interior of their tissues. Nothing can deliver them from this painful tribute but their inhabiting a warmer climate than that in which they have hitherto lived. It will be always remarked, that in proportion to the relaxation and transparency of the body, and the feebleness of the circulation in the capillaries of the surface, will be the difficulty of restraining patients from the use of accustomed exutories, or other artificial means of irritation, such as tobacco and periodical purgations.

For the same reason that the individuals here designated, endure well external stimulations, they would derive some benefit from internal medicines which solicit certain evacuations, and, consequently, from all relative antiphlogistics.*

When the tissue of the lungs becomes phlogosed, after the suppression of a hæmorrhage not proceeding from the mucous surface of the bronchiæ, there are two general modes of proceeding; 1st, the resources which naturally present themselves to the experienced practitioner in plethoric subjects, if the hæmorrhage, as the menses and hæmorrhoids, can be reproduced, are local stimulating *evacuants*, as leeches, or cups applied to the vulva, the anus, or to the neighbouring parts; and in subjects whose san-

* It should be remembered, that under pretext of their possessing lymphatic temperaments, a great number of individuals are continually stimulated by their physicians, and kept in a constant state of gastritis, or gastro-enteritis.

guineous activity is defective, those evacuants which are both irritating and inflaming, such as rubefacients, vesicatories, boiling water, fire, &c.; 2d, if the hæmorrhage be from the stomach, intestines, nose, or skin; if from an ulcer which had been healed, or in any other way, which would prohibit any attempt to renew it, the treatment would come under that which we recommended for accidental inflammation of the lungs, or under that which we shall point out for constitutional phthisis. The same must be said of phlogistic irritations of the lungs, which are the consequence of hæmoptysis.

All the causes of phthisis which we have collected under title VII. may act upon the pulmonary tissue in a much less active manner, and instead of a cough, with febrile heat, occasion dyspnœa, or a chronic cough without disturbance of the pulse. These symptoms suppose that the morbific influence has been felt rather by the white fasciculi disseminated in the tissue of the lungs, than by the arterial capillaries, or that these last are endowed with but little activity; this constitutes the form of phthisis described under the following title.

VIII. *Constitutional phthisis*, as has been before observed, shows itself in two distinct forms; 1st, by symptoms more or less violent, with disturbance of pulse, and signs of inflammation;* 2d, in a much more moderate manner, and without any febrile action, which could induce a belief that the sanguineous system was harassed by the cause which is impairing the tissue of the lungs. What can we advise to arrest the progress of the first variety, which has not been already pointed out in the general therapeutics of pulmonary phlogosis, and in the summary of particular cases, in which that phlogosis acts a predominant part? However, we think it necessary to recommend, in a more particular manner, clothing best adapted to guard against cold and damp—vegetable and milk diet in such quantities as always to leave the appetite unsatiated, and a warm climate.

There is no exception to this rule: every individual having a soft texture, slender form, and contracted chest, who apprehends pulmonary phthisis, cannot pursue a better course to avoid it, than to fix his residence in a country where there is no winter.

* To this must be added the hæmoptysis with which the disease first makes its appearance.

Dry, elevated places, exposed to fresh air, should be preferred, because humid and marshy lands are extremely unhealthy in southern latitudes, where animal and vegetable putrefaction is very rapid; and because the night-dews, which are often very cold, would expose him to catarrhs, which he should always avoid.

If a person of a consumptive habit, removed to a warm climate, is irritable, sanguine, and his skin high-coloured, he should select a scite kept cool by plantations of large trees, and by its proximity to water.

If, during his treatment, he contracts a catarrh or a pneumonia, we must avoid stimulating him by blisters and cauteries to the same degree as if he had remained in his native country. Pulmonary phthisis, treated in its infancy by vegetable diet and antiphlogistics, is readily cured in those climates in which the skin is always kept in action by abundance of light and of caloric.*

Are there any hygienic precautions which can be substituted for these precious advantages, in the cold and foggy atmosphere of our capital, (Paris,) which can hold out to delicate persons the hope of saving themselves from phthisis pulmonalis?

I know of none, except flannel garments worn next to the skin during the winter, water-proof shoes, and constant moderate exercise, in order to maintain the power of expiration, which is always inclined to become feeble.

It would be very advantageous for feeble men who dread phthisis, to place between the flannel shirt which is worn next to their skin, and the outside garment intended to decorate the person, something less permeable by moisture than woollen stuffs; such as a waistcoat and drawers of soft, well-dressed skin;† if to this they added the precaution of exciting the skin, from time to time, by gentle frictions, to abstract themselves from all the causes of external irritations which we have indicated as sources of accidental phthisis, to confine themselves to milk or to gruel

* This expression shows how improper the word *phthisis* is; I have on that account substituted that of *chronic pneumonia* in the *Examination of Medical Doctrines*.

† It is of importance to place a woollen waistcoat next the skin, otherwise the transpiration retained by leathers and oil-silk, produces a cold humidity, which increases from the slightest movement, and which is dangerous and insupportable.

or light panadas for their nourishment, as soon as they have contracted a catarrh, or when they experience an increased oppression after a sudden and considerable change in the temperature of the atmosphere, they might preserve their lungs from tubercles during the course of a very long life.

The second variety of constitutional phthisis, that in which the sanguineous system is entirely inactive, excludes all debilitating remedies, but requires a choice from amongst the stimulating, which ought to be directed from a profound knowledge of their action. The object in view is no longer to destroy the phlogosis, it is rather to obtain the resolution of the slight lymphatic tumefactions with which the lungs are affected; but this must be accomplished without creating in the sanguine capillaries a stimulus capable of producing phlogosis in them, as it has been demonstrated that this phlogosis, by reäcting upon the absorbent system, would hasten the development of tubercles. It is therefore necessary at the same time to stimulate the lymphatic system, and to manage the sanguineous; but it is likewise always proper to do it, when, after having appeased the general irritation in other phthises, we wish to act directly upon incipient tubercles, to which may be attributed the continuance of the particular irritation of the lungs. This, then leads us to the second general indication in the treatment of phthisis, which succeeds to that of the reduction of the phlogosis, and which must form the second division of this chapter.

II. ON THE MEANS OF DISSIPATING LYMPHATIC ENGORGEMENTS OF THE LUNGS.

Nothing can be more confused than the observations of medical writers respecting the treatment of pulmonary phthisis. Medicines the most opposite in their action are frequently placed in apposition, and administered to fulfil the same indication. Thus they recommend to us, bleedings and antiscorbutics, sudorifics and cold baths, &c. &c. for the purpose of resolving tubercles. At the very sight of this mass of worthless citations, the only object of which is to make a vain display of erudition, and of that crude *farrago* of opposite medicaments which are recommended, as if from inspiration, without any reasons being given, or from a supposed state of the fluids which cannot

be proved by any of our senses, no reflecting man can avoid feeling disgusted, and being led to seek to discover the truth elsewhere.

The attentive observation of what is constantly passing before us, teaches us that cold, by weakening the external capillaries, has a tendency to surcharge the chest. Therefore it is not the remedy for a tubercular diathesis, as described by authors, that is, one entirely scrofulous and attributable to debility. They advise advantage being taken of the chill which the cold bathing occasions, in order to excite a febrile action by heating drinks, which they consider as well calculated to resolve tubercles, as if they had assured themselves by inspection that the tubercles were still resolvable! as if the strong excitation of the sanguineous system did not tend to a disorganization of the lymphatic! as if the prostration which succeeds such an excitement must not augment the debility of the latter system!

In studying the effects of irritating medicaments upon the human body, I have learnt to dread these artifical fevers, even when they are regularly kept up. Whosoever follows this method will soon perceive that he is playing *double or quits;* and if he makes a just estimate, he will after some time, find out that it has been a losing game. In fact, the obstinate use of stimulants, particularly of those of the mineral kingdom, which are given in order to dissolve and resolve lymphatic engorgements, independently of the injury they may do the chest, establishes also in the gastric passages a vicious sensibility, the first effect of which is to impair digestion; and very often there results from it gastritis or fatal dysenteries. Particular individuals long resist the disorganizing power; but there are others, who are struck with death from the very moment in which they receive its impression. I depend on physicians who have practised in southern latitudes to confirm what I have here advanced in a general manner, in order to place the young practitioner upon his guard.

Therefore, when dyspnœa and cough, joined to a pale complexion, to little activity in the sensitive system, to softness and smallness of pulse, induces him to try the effects of corrosive sublimate, of muriate of barytes, &c. he will have two consequences to fear: 1st, lest these medicines should seriously impair the function of the viscus to which they are immediately applied; 2d, lest they should determine the explosion of the pulmonary

phlogosis, by imparting to the arterial system a susceptibility which it had not before.* A distinction, however, must be made; the last effect is not always as serious as the first, as cures produced by means of artificial fevers have been cited. Nevertheless, as they could only have been obtained at a period when the tubercles had not yet been converted into a pulpy matter, as this change cannot be recognised until long after it has taken place, and is often not even suspected, success can be but little depended upon. Besides, we are aware that if these commotions do not prove curative, they necessarily augment the disease.

It will therefore be most prudent, after having commenced by the smallest doses, to increase them very gradually, and to lessen or suspend the medicine as soon as any derangement in the functions is perceived. It is also necessary to know when to stop, after having persevered a sufficient length of time, to feel convinced of the insufficiency of the means employed. The proof is ascertained by the constant augmentation of the disease. If it remains stationary, we may persevere for several months; but, after that time, should the return of warm weather produce no amelioration, the medicine employed must be discontinued and another selected, but before it is used, time must be given for the economy to accustom itself to the loss of extraordinary stimulations.

As to the choice of irritating medicines, which may be considered as acting more particularly upon the lymphatic system, after having compared the results of my experience with the reports of those physicians who have the most occupied themselves with the diseases of that system, I think it best to place them in the following order.

Mercury is at the head of every other. Many physicians have

* Physiology and observation have carried us far beyond the point which I had then reached. I conceived, and many yet conceive, that irritation is located in the coats of the arteries whenever there exists an inflammatory diathesis manifested by the repetition of phlegmasia in various parts of the body. We must now distinguish the febrile state dependant upon the irritation of the capillary foci of inflammation, from that which is kept up by arteritis, by phlebitis, or by inflammation of the heart itself. I will elsewhere give the distinctive characteristics of these different states, that is to say, as far as it lies in my power.

found it successful in phthisis suspected to be venereal and in scrofulous phthisis, under the form of corrosive sublimate. Although they have not equally well described the cases in which they were successful, and particularly as they have not sufficiently distinguished between these cases and those in which they failed, it appears, notwithstanding, that there is but little risk in trying its effect, with the recommended precautions, in the dose of an eighth, or, at most, of a quarter of a grain per day, without augmentation, in a mucilaginous vehicle, or in the form of pills, made up with an analogous substance, such as the crumbs of bread; but this last form is not as certain as the first.

The corrosive sublimate is also given in an antiscorbutic or a sudorific syrup; it always requires the same precautions. Some authors have combined antiscorbutics, mercurials and antimonials. It is not the water of vegetation which is here required by antiscorbutics; it is that particular stimulus, in scurvy-grass, horse-radish, mustard, water-cresses, and most of the seeds of cruciferous plants, which causes the humours to flow, and which reddens, inflames, and ulcerates the living parts. It is well known, that they lose their virtue unless administered fresh and undressed. There are but two ways of using them: to eat them raw, or to drink the juice expressed from them. The syrups called *antiscorbutics* owe their properties less to these substances than to the bitter, pungent, purgative and aromatic articles, which are combined with them: this is evidently saying that they might with much more propriety receive the name of simple diffusible stimulants.

Sulphur has been administered in substance, in a sublimed state, or flowers of sulphur, when the disease was owing to a repercussion of a psoric or herpetic affection. The golden sulphur of antimony, (orange hydro-sulphuretted oxide of antimony,) and kermes, (brown hydro-sulphuretted oxide,) have been also tried in similar cases, and their effects been promoted by bitter decoctions of the antiscorbutics, chicory, and by the juice of the plants of that family, with the acetates of potash, of ammoniæ, or of soda. Hydro-sulphurous thermal mineral waters, charged with carbonic acid, still make a distinguished figure amongst the means calculated to resolve lymphatic engorgements of the viscera. They are used externally and internally. They powerfully excite all the depuratory evacuations.

The extracts obtained from the narcotic plants, hemlock, belladonna, and henbane, are considered as powerful sudorifics, and they are thought to have a specific action upon the lymphatic system, (hemlock has lost some of its reputation.)

Water distilled from the prunus lauro-cerasus, the extracts of *rhus radicans*, of aconitum, of helleborus, of the acrid ranunculi; in short, all those plants which produce a great effect in very small doses, have been had recourse to, in order to stimulate the inactive temperaments in which it was suspected that the lymphatic tumefactions were the effect of this general torpor. Under such circumstances particularly, the smallest doses must be commenced with, and the effect carefully observed. Occasionally success has followed; but, unfortunately, I again repeat it, enough has not been said respecting the cases in which these remedies have proved hurtful.*

I have also been successful but so seldom, and the history of these cases is so incomplete, that I should not dare offer them as authority. It belongs to physicians who practise in low, damp countries, in the confined parts of large cities, and who attend the indigent class of society, to teach us to appreciate the value of each of the articles which we have just enumerated.

After these stimulants, the best that we are acquainted with to rouse the most insensible tissues of the economy, and to solicit the depuratory secretions, but which are only proper in those cases of phthisis in which the sanguineous system is perfectly inactive, and the gastric susceptibility at the lowest ebb, are placed the diaphoretic and mildly diuretic medicines, which we have proposed for resolving inflammations which have at first been moderated by antiphlogistics, properly so called, (see p. 410.) We will add, besides, some preparations very much in use, such as the extracts of soapwort, (saponaria officinalis,) of woody nightshade, (solanum dulcamara;) the decoctions of parsley, of chervil, of fennel, the clarified juices of those plants, and oxymel of squills.

* I do not now believe in the antiscorbutic property of such stimulants as have been enumerated in the 430th and following pages. I think that they have only cured slightly inflammatory catarrhs by displacing the irritation, that is to say, by causing revulsion. At all events, the precept so many times repeated, to watch well their effects, will be sufficient to prevent a bad use being made of them.

These remedies are applicable to doubtful cases, when there is reason to dread the too powerful effects of the stimulants already mentioned. Therefore, when an individual labouring under an affection of the chest, is irritable, has a little colour, when he is sufficiently large and muscular to induce a belief of his being susceptible to an attack of fever of some violence, these means are more to be depended upon than the others. In these cases, no irritating medicines whatever must be used until after the gastric susceptibility has been allayed by mucilages and milk, and the sanguineous capillaries weakened by abstinence from animal food and spirituous drinks.

There is another case in which gentle irritating medicines deserve the preference: it is when the pulmonary affection has been at first febrile. A person who has once had an inflammatory action, is always liable to a repetition of it. Therefore, we must be extremely cautious in continuing the use of energetic stimulants, such as the muriate of mercury and that of barytes, and should take the following rule for a basis; all violent medicaments given in small doses and during a length of time, should show their effect upon the economy only by a diminution of the symptoms of the disease for which they were given, and by a slight increase of urine, of perspiration, and of appetite. Should they act more energetically, that is, should they keep up a kind of hectic, and harass the secretories, it is to be feared, 1st, that they may increase the disease; 2d, that, sooner or later they may suddenly throw the organs into an incurable collapse;* 3d, that they may suddenly develope a violent inflam-

* Mercury is said to occasion, besides an atony of the solids, the dissolution of the humours of the living body. It does indeed appear, that in individuals who have used it for a length of time, the consistent part of our humours which, fundamentally the same, presents itself under the various forms of gelatine, of albumen, of fibrin, of more or less concrete oil, &c. are more easy of decomposition than before. It might be said that the affinities which maintain our fluids in these different states, and which we shall call for an instant *vital affinities*, are weakened by the action of this medicine. These same properties are certainly still in our solids, but in a less degree. It may be answered, that all this is the effect of the diminution of vital energy. But this reply is too vague; for all asthenic diseases do not equally dispose our body to decomposition.

This idea is susceptible of great development. I cannot devote myself to it in this work; I shall, however, remind all physiological physicians, that the

mation, followed by a speedy disorganization in the viscera of digestion.

state of the body which succeeds the use of mercury is favourable to the progress of scurvy; that, consequently, it would be very injudicious to treat it by the employment of perturbating and diffusible stimulants; and finally, that the treatment of that diathesis is precisely the same as scurvy, whose symptoms it also borrows.

It is likewise proper to add, that all minerals have the same tendency to destroy the adhesive power of our fluids and solids. We have seen, says Schwilgué, in speaking of the fixed alkalies, "the blood of individuals who have used them for a length of time become thin and not coagulate upon cooling, lose these qualities whilst the use of alkalies was suspended, and reässume them when their administration was renewed." (Traité de Matière Médicale, Vol. I. p. 425.)

It is this property of the stimulants from the mineral kingdom that is relied upon in their application to the treatment of lymphatic affections. Complete success has been obtained only in cases of venereal disease; and of all these dissociating remedies, mercury is the only one which constantly triumphs; the effect of the others is always precarious. Let us render these reflections subservient to the therapeutics of tubercular apyrexic phthisis.

Daily experience proves that mercury can be supported so long only as the sanguineous system is tranquil, and appears, in some degree, free from derangements of the white fasciculi. We know that it must be kept in this state by vegetable diet, and by abstinence; that, without these precautions, mercury developes inflammatory fevers, the termination of which we are obliged to wait for, before renewing this medicine. We are now well convinced that these excitements of the sanguineous system do not accelerate the cure, and never fail to act insensibly upon the white system, as long as they would have done if they had not interrupted the treatment; we are aware that if we continue to irritate the patient, he is hideously disfigured by a confluence of scorbutic and gangrenous phlegmasiæ, and dies in a most deplorable condition.

The constantly renewed imprudences of charlatans, furnish innumerable proofs of these fatal effects of mercury acting too powerful upon the sanguineous system. If then we wish that this article, and those whose action is analogous to it, should advantageously modify a tubercular lung, care must be taken that their action be not too powerfully felt by the sanguineous capillaries of the viscus. I would even venture to say, that the precautions are more necessary under such circumstances, than in the anti-syphilitic treatment; for, should any unfavourable symptom result, they would be more active, and more irreparable than in most venereal affections, which do not extend their action to organs as important as the one which presides over respiration.

Let us therefore conclude from what we have just said, that infinite skill, much acuteness of discrimination, accurate reasoning, and the habit of observing, are required in order to render the most formidable poisons subservient to the cure of an affection, which of itself jeopardizes life, and to be enabled to remedy the untoward symptoms, which we cannot avoid occasionally producing. (Note to the first editions.)

Experience has fully convinced me of this, and it will be verified by every attentive observer. Upon these data it will be easy for the least experienced practitioner to guide himself in the employment of the most perturbating irritants; it will be sufficient for him to commence by the smallest doses, to discontinue the moment the action of the secretories appear to be excited, or when the harmony of the functions is about to be deranged; finally, it must be persisted in only so long as the principal disease continues to decline.

I cannot conclude the enumeration of the medicinal means without adverting to the advice already so often repeated, of preventing all sensation of cold, of making the stimulations of the external surface, and the absence of specific irritations of the lungs concur with the other appropriate remedies; for without these precautions a cure is impossible.

It is principally under such circumstances that solar heat would be of great assistance. The stimulus produced on the skin by baths of sand and of muriate of soda, heated to about the temperature of the body, is well calculated to produce a revulsion of the fluids from the chest; but it is necessary that the excitation which they have established in the cutaneous tissue should be kept up by other means, until a renewal of the immersion. Atmospheric heat is the only one which can produce that effect in an uniform manner; the absence of which may be supplied by the course recommended for keeping up the action of the cutaneous system.

It is in pectoral apyrexic irritations that artificial suppurations with divisions of the cutaneous tissue, or issues, are more particularly useful. I prefer applying them on the chest. I would even recommend the application of several moxas, observing, however, never to place them too near the epigastric region. A seton in the neck or between the scapulæ, appears to me to hold the second rank; I shall give the third to potential or actual cautery, applied to the inner side of the arm, below the insertion of the deltoid, and to the side which appears to suffer most.*

However these means may appear indicated, we must be very

* We now know that it is better to place them under the clavicle, on the side where the sound is dull.

cautious not to employ them if we perceive that a long use of diffusible stimulants, and more especially the use of mineral remedies, has produced a kind of scorbutic diathesis, since this diathesis tends to diminish the power which maintains the composition of our tissues, and since in an organization thus modified, phlegmasiæ easily run on to disorganization.

If it be perceived that the patient has derived any relief from the method which has been adopted, it should be continued; but after some time, and in proportion as the symptoms diminish, the dose of the stimulant which formed the basis of the remedy must also be diminished. It should be gradually replaced by those of less activity.

The less we stimulate with medicaments, the more we must excite with food.* Therefore, from gelatinous regimen, broth made of snails, of tortoises, of veal, of young chickens seasoned with pot-herbs, &c. which should constitute the only nourishment in scrofulous phthisis, whilst there is oppression and frequent paroxysms of cough; we proceed to the meat of chickens, of veal, and of frogs, to farinaceous food, such as rice, panadas, and soups; then more consistent food may be allowed, and juicy fruits, the use of wine, which hitherto had been withheld, may now be permitted, and the patient insensibly habituated to his usual food.

Some practitioners have discarded all preparations of milk from the diet of those in whom they apprehend tubercular phthisis. I am far from being of their opinion. Milk is always proper when it can be digested without fatiguing the stomach. It is from a mistaken theory that the property is given to it of *inviscating*, of *incrassating*, of rendering the lymph too coagulable, and of facilitating scrofulous engorgements. The same has been said of vegetable farina; and, notwithstanding, milk and vegetable farina are and always will be the best possible food for those individuals who require an abundant and easy nutrition, such as children, and persons whose viscera are irritable, or who are prostrated by long excesses. It is experience which here pronounces, and condemns that blind routine, in the same

* By this it is to be understood that stimulating aliments are not suitable so long as there exists sufficient irritation to indicate the employment of antiphlogistics.

manner as the progress of physiological science condemns the theory upon which it was founded.

So long as milk is grateful to the patient, and it can be digested, it is suitable to these cases of phthisis, as well as to those which are more nearly allied to the inflammatory state. When the stomach is cold and languid, the digestion of milk may be aided by the addition of cinnamon water, &c. by boiling it with wheat flour and adding sugar, nutmeg, cloves, and aniseed. But when the patient is troubled with acidities, when he experiences pain and weakness of stomach, and his excretions are more acid than ammoniacal, milk is no longer suitable for him. We therefore place it here as intermediate between the regimen for inflammatory phthises and that for asthenic phthises,* to be used in those ambiguous cases which do not enable the practitioner to discover at first sight the true indication. Whenever assimilation is very difficult, animal diet should be preferred, pursuing the gradations which we have already advised.

If, far from advancing towards a cure, the disturbance of the chest has made such progress as to render the disorganization of the lungs probable, the prudent physician should renounce the perturbating treatment and simply endeavour to assuage the most urgent symptoms, until the patient finishes his career. Much skill, combined with sound and extended views are here requisite whether to accurately account to ourselves for the cause of the symptoms which embitter the last days of the patient's life, or, whilst endeavouring to soothe him, not to do any thing which can prevent nature from developing her immense resources, for whilst life exists we ought rarely to despair. As the indication for the treatment of the most urgent symptoms is common to all the phthises hitherto mentioned, it forms the third great division of this chapter, with which we shall now occupy ourselves.

III. REMEDIES APPROPRIATE TO THE PREDOMINANT SYMPTOMS OF DIFFERENT PULMONARY PHTHISES.

The third period of phthisis presents two well defined general differences. In the first, there exists ulceration of the lungs; in the second, disorganization takes place without the concur-

* This is a vague expression; it can only convey the idea of the phthises of debilitated individuals, but they are always owing to irritation.

rence of an ulcer. The last differs from the other only by less fulness of the pulse, and a less rapid decomposition. As it has no predominant symptom which cannot be found in a greater degree in the other, we shall not assign to it any especial preservative treatment. It will be at all times easy to apply, according to circumstances, the remedies which we have recommended for suppurating phthisis.

We have established that the increase of the hectic fever, the fetor of the excretions, the purulent nature of the sputa, and above all, the *rapidity of the decomposition*, announce the presence of an ulcer in the lungs. We shall here add some reflexions upon the last character, which appear to us very important to the diagnosis of this degree.

The emaciation which announces suppuration, is not confined to the disappearance of the fat from the subcutaneous tissue. A patient may remain a long time in that state, without being despaired of, especially if he retains a nearly natural colour. However, if his muscles are small, he will appear far advanced in marasmus, whilst in fact he is scarcely at its commencement. Nevertheless, the inattentive practitioner, who succeeds in restoring him to health, will publish it as a cure of phthisis in its last stage; he will adhere the more to his error, because the hectic from pain was more severe, and the patient expectorated with great facility; and he will never imagine that he has cured only a slight affection of the chest.

In order to avoid a similar mistake, and be more precise in giving descriptions, the patient should be compared with others, who are more or less muscular, and attention should be given to the following observations.

The dissipation of the fat deposited between the muscles, which is generally reabsorbed with that of the subcutaneous tissue, does not efface the outline of the muscles; it only diminishes their volume, and motion still continues easy; but from the moment in which the tissue which insulates each fasciculus becomes empty, nutrition is defective, these organs become quickly extenuated, and they lose their form, their consistency, and their facility of motion.

The following appears to me to constitute true marasmus; 1st, it comes on very slowly in apyrexic phthisis; 2d, those in which the hectic is violent without suppuration, carry off the patient

before marasmus has been effected; 3d, the fever of reäbsorption is the only one which causes it to make rapid progress.

Therefore as long as the muscular form is preserved and exercise is possible, I do not despair of a patient, even though he should seem to expectorate pus, and should be consumed by a most ardent fever, unless the disturbance of the chest and the progress of the lividity should announce disorganization, as in pneumonic phthisis. Very often, when these two symptoms do not occur, all the tumultuous attendants disappear as soon as irritants have been discarded, and the return of the functions to their state of integrity, proves that the fever was one attributable to the *pain*, and the puriform sputa to the exaltation of the action of the mucous secretories.

The motive of this digression will plead in favour of its excuse. I now return to the treatment of the third degree.

The symptoms for which we are obliged to prescribe, may be referable to the *chest*, to the *abdomen*, to the *head*, to the *exterior of the body*, or to the *ensemble of the individual*.

I. *To the chest.* These are reducible to pain, to cough, to dyspnœa, and to vitiations of expectoration.

A circumscribed and acute *pain* may be mitigated by the means pointed out in the treatment of pleurisies, viz. vesicatories and cataplasms. If it is extensive and deep-seated, with a very hard pulse, it requires leeches and emollient fomentations. When it is lacerating, vellicating, with a moderate or feeble pulse, it yields to opium, which it is frequently necessary to increase to very considerable doses.

The *cough* requires the same remedies. As it is most distressing during the night, opium, of all remedies the one which has the most influence on that symptom, should be given towards night. It is well to have a second dose ready to be taken after the paroxysm which occupies the early part of the night. This procures a little sleep. The paroxysms of cough may also be arrested by inhaling ether. Dr. Keraudren has told me that he had often obtained good effects from making the patients inhale the vapour of hot water poured upon hemlock or nightshade, adding a certain quantity of sulphuric ether. Silence and a vertical position of the body should concur with these means.

Dyspnœa, or difficulty of breathing, which is vulgarly designated by the word *oppression*, arises from the same causes and

should be combated with the same weapons as cough and pain. This symptom is the most dreadful of all; in patients in whom inflammation makes rapid progress, it causes the most insupportable degree of anxiety. As it depends in these unfortunate cases upon the disproportion which exists between the mass of fluids, the extent of the respiratory surface, and the proportion of the parenchyma permeable to the blood, it requires general bleeding as long as the pulse is full and hard, but it should be practised with extreme caution: the individual prostrated by a too violent reäction, might fall into a fatal *collapse*, should the mass of fluids be too suddenly diminished, and should the afflux of blood towards the nervous centre be interrupted by weakening too much the principal circulatory power. When dyspnœa coïncides with a languid pulse, it cannot be remedied except by the diffusible exciting medicines which we have pointed out as proper for pain, of which, accurately speaking, it is only a variety.*

Among *vitiations of expectoration* we find its extreme abundance, its total absence followed by serious symptoms, the difficulty which the patient experiences in detaching the expectoration, its fetor and its mixture with foreign matter and with blood.

When the copiousness of the expectoration appears to exhaust the patient, its nature must be examined. If it appear to consist only of mucus, that is, if it be transparent, or if, although white and opaque, it has not the fluidity and fetor of that humour, it may in fact be solely owing to the extreme irritability and weakness of the mucous glands; for in many instances, the pus of cavities is resolved, rather than expectorated, and the patient expectorates a quantity of mucus coming from the bronchiæ and very little genuine purulent pus. This grade is most peculiar to men who have always expectorated freely and profusely: one question will be sufficient to determine it. In this case, a strong dose of laudanum, combined with an astringent mucilage, such as Iceland moss, or mixed with a decoction of cinchona which had been rendered gelatinous by dissolving in it the jelly of stag-horns or of isinglass, is the most appropriate remedy that I am acquainted with. If a mistake should have been made respecting the precise character of the disease, and it should be only a prolonged catarrh, occurring in a phlegmatic temperament, which it

* And by blisters.

was necessary to treat, an unexpected cure might be effected. If the sputa are evidently purulent, this method may and ought still to be tried; but generally it does not succeed, and recourse must again be had to the sedative treatment and to opium without any combination.

In an advanced stage of the disease, a sudden suppression of the expectoration is generally a presage of death. At another period, it frequently corresponds to an aggravation of the phlogosis, the cause of which may be referred to some therapeutic or dietetic error. When it depends on the last mentioned cause, it yields to sedative and relaxing regimen. If, after the erythism has been allayed, the expectoration does not reäppear, its return may be solicited by the vapour of ether, or by the antispasmodic fumigation, which we recommended for the cough.

Kermes, the preparations of squills, the syrups of hedge mustard, of garlic, of colchicum, of the powder of arum and the balsamics, are also used with the same intention. All these stimulants are excellent when it is necessary to promote mucus or purulent excretion in a relaxed and debilitated individual, whose stomach is not very susceptible. But when they are lavished with the same intention upon dry and irritable individuals who have never freely expectorated, and whose lungs, little disposed to the secretions of mucus, are stimulated by dry tubercles, by a tumefaction of the mediastinum, by a pleuritic collection, &c. they become true poisons.

They are poisons also, and much more certain ones, when a person who expectorates with difficulty is at the same time treated by a heating or restoring regimen, and when the mucous membrane of the stomach has a tendency to phlogosis. During the early period of my practice, I made great use of kermes, and of the oxymel of squills, in enfeebled individuals who expectorated with difficulty. Astonished at finding but few cases in which these medicaments were really useful, I observed, I compared, I sought for information from dead bodies, and I found that at one time I had been uselessly endeavouring to promote expectoration in an individual with dry phthisis or chronic pleurisy; at another, that I had improperly stimulated a stomach already phlogosed. I should have sought in vain for information by reading the best authors; not one, no, not a single one, could have served me as a guide. Absence of fever, paleness of complexion, difficulty of

expectoration, and consequently a relaxed state of the solids or viscosity of the fluids; therefore the necessity for strengthening the former, of dissolving and cutting the latter; this is the only starting point of every physician who is commencing practice. A long and painful groping in the dark will teach him in the end to direct himself better; but after having well exercised himself, ought not he to abridge the path of doubt and error for his successors? I therefore advise the practitioner to recollect all the distinctions which have been established by us, before deciding upon stimulating with kermes and oxymel of squills, an unfortunate being who has pain in the chest and who cannot expectorate.

The fetor of the expectoration, its purulent, bloody, and sanious appearance, announces to every physician the existence of a disorganizing ulcer. Many methods are recommended for curing this ulcer. The most celebrated, those which have been regarded as more particularly specific, are the aromatic plants which compose the medicinal family of vulneraries, such as the *Achillea millefolium*, *Hypericum*, *Vinca minor*, *Coniza*, and a great number of the *labiatæ*, the natural balsams of Peru, of Tolu, benzoin, the terebinthinates and fir tree tops, the volatile oils of turpentine, of cloves, of aniseed, of lavender, of peppermint, under the form of *oleosaccharum*, camphor, the extracted resinous juices of guaiacum, of aloes, of myrrh, incense, the flowers of sulphur, and the anisated balsam of sulphur,* lime water, the hydrosulphurous mineral waters, asphaltum or bitumen of Judea, the balsam of Mecca; in short, all the stimulating substances which have been used with any success upon foul atonic ulcers and which have appeared to favour their detersion and cicatrization.

Of all the medicaments which can be improperly used in the treatment of the last stage of pulmonary phthisis, none are more likely to hasten a general disorganization than those which we have just enumerated; I have seen the most dreadful effects result from them. All the benefit which Morton rendered to medicine, would scarcely balance the injury produced by his balsamic pills. The damp, cold, foggy atmosphere of England, by providing him with many cases of scrofulous and asthenic dyspnœa, may have obtained some celebrity for his remedy; but in France, and particularly in Italy, its bad effects would have been very soon observed.

* Sulphur dissolved in oil of aniseed.—Trans.

All these pretended vulneraries are not endowed with the imaginary prerogative of deterging and of cicatrizing the ulcer of the lungs: they stimulate the stomach which receives them; if there is a predisposition, they phlogose it; they hasten the appearance of diarrhœa; they increase the intensity of the hectic, and multiply the causes of destruction with which the unfortunate patients who labour under phthisis are surrounded. They never can be of use except in such coughs as are purely mucous, in individuals of little sensitiveness, when scrofulous phthisis is apprehended, and always before the period of phlogosis and suppuration. They must therefore be placed next to the stimulants which we have recommended to be administered with every possible care in the second general indication of phthisis. They are there truly in their proper place; and if we abstained from naming them in recapitulating the anti-tubercular stimulants, it was solely in order to avoid repetition, since it was impossible for us to pass over the period of suppuration without indicating their mode of action.

Several physicians have proposed to administer them in the form of vapour; that is, to cause the patient to inhale the vapour of hot water in which they had been steeped, or to impregnate the air with them by their dry combustion. Their action is much more limited and also less dangerous in this manner. The vapour of hot water may facilitate expectoration in some cases of dryness and constriction, and if the phlogosis be not excessive, the mild stimulus of the balsamics may be useful. But it is only a trifling palliative; that already recommended for the same case appears to us more suitable.

I confine myself to promoting expectoration with a julep composed of the mucilage of gum tragacanth edulcorated with simple syrup, and with theaddition, according to circumstance, of the distilled waters of peppermint, cinnamon, and balm; with laudanum, sulphuric or acetic ether, and occasionally with kermes and oxymel of squills, but never uniformly and constantly. Should the thirst be very great, a selection may be made of those which agree best with the taste and stomach of the patient, from amongst the muco-saccharine, gramineous, and mucilaginous ptisans, such as the decoction of raisins, of figs, of apples, of barley, of rice, of pectoral flowers, and of the roots of comfrey, *(Symphytum officinale.)*

The inhalation of gases has attracted the most attention of all of the newly-invented methods. Oxygen gas was at first considered as the specific remedy for ulcerations of the lungs; but it was soon ascertained that it increased the phlogosis and gave fresh activity to the ulcers which destroy the pulmonary tissue. The antiseptic property of carbonic acid gas afterwards induced a belief that it was more appropriate, (doubtless they did not think of the innumerable tubercular nuclei which exist in the whole vicinity of the ulcers.) Experience has not confirmed the conjecture; it has even been proved that the action of this gas is sometimes deleterious. The same inconveniences have attended the use of nitrogen and hydrogen gas, and this gaseous treatment has ended in vapour.

Very recently,* Dr. Amelung, physician to the military hospital of Darmstadt, has published in the *Journal de Médecine Pratique*, of the celebrated Hufeland, several cases tending to establish the powers of the acetate of lead in causing cicatrization of ulcers of the lungs. He depends upon the astringent property of that salt for closing the orifice of the vessels which furnish pus. He mentions several recoveries from affections of the chest, with purulent expectoration, occurring whilst the patients were making use of this medicine. We shall not stop to discuss the facts on which he relies, to point out wherein they are deficient in conclusiveness, or to refute the conclusions which he draws from them. He will not persuade those, who after having read my work, would wish to verify by clinical observations and by pathological anatomy, the accuracy of my observations and the correctness of my inferences. We shall confine ourselves to observing, that the acetate of lead, only acting by astriction, cannot cure suppuration from tubercles, which is almost the only one that can occur in the tissue of the lungs; but that, for the same reason, it might be classed with tannin, with the decoction of cinchona, of oak bark, with opium, with astringent mucilages, &c. in the treatment of prolonged catarrhal affections of relaxed, slightly irritable, exhausted individuals, particularly if they should have varico-aneurismatic lungs. Even in these cases it would be prudent to use it with extreme caution, in imitation of the author, who has never carried it beyond from three to four grains a day, to be

* It must be recollected that the first edition of this work dates 1808.

taken in a spoonful of some liquid. We shall conclude by observing, that he has almost in every instance assisted his medicament by those remedies which have been most successful in prolonged asthenic catarrhs, such as the tincture of opium, aromatic distilled waters, the decoction of cinchona and of hippocastanum.

II. *To the abdomen.*—Of the symptoms in the last stage of phthisis, which depend upon an abdominal lesion, diarrhœa is the most common, as we have already remarked in enquiring into its cause, page 342. The means of preventing it, is to follow exactly the plan of treatment we have given for the different varieties of phthisis. It is to be moderated by the same precautions, by depriving the patient of meat, and all aliment difficult of digestion, and by nourishing him with soup, rice, gruel, jelly, &c.; by allowing as a drink rice or barley-water, or a decoction of dried oats, the common white decoction,* &c. with the addition of wine and aromatics, and by giving him occasionally a few spoonfuls of a mucilaginous potion, with laudanum. (See, for further details, *the treatment of diarrhœa, Vol. II.*

Pains in the stomach, and colics, require the same plan of treatment, modified as circumstances may render necessary. Pains in the bladder, and secondary phlogosis of its internal membrane, forbid the use of cantharides, of balsamics, of terebinthinates, and of heating antiscorbutics, and indicate the employment of demulcent drinks, and of fomentations and cataplasms of the same nature. Pains in the abdominal parietes, the effect of coughing, are allayed by opium, and by all the means which render the paroxysms less frequent. Peritonitis requires quiet rest and demulcent topicals. See the chapter devoted to that disease.

III. *To the head.*—A disposition to cerebral affections, which is characterized by stupor, and a tendency to sleep, warn us to avoid the use of opium, and all narcotic stimulants. On the contrary, it emboldens us in the employment of rubefacients, of cauteries, and of those internal means which solicit evacuations, provided they should not be counter-indicated by the state of the primæ viæ. Little else can be done for this incidental symptom.

* See note, p. 266, for the mode of making the white decoction.—Trans.

If the cerebral affection be more convulsive than torpid, opium and all the sedatives would be applicable.

IV. *To the exterior of the body.*—By the symptoms depending upon a lesion of external parts, I understand sweats, different eruptions, depots, eschars, and pains of the limbs.

Excessive and debilitating sweats require that narcotics should be withheld. They must be allayed by mild astringent drinks, such as rice-water flavoured with wine, or acidulated with sulphuric acid, by a decoction of cinchona in an emulsion, and by wine judiciously administered. Vesicatories and rubefacients are no longer proper; lotions with tepid water, sharpened by the addition of rose vinegar, fomentations of camphorated brandy, ether, or a mixture of water, vinegar, and brandy, must be substituted for them, and too great a quantity of bed-clothes ought to be particularly avoided. Great care must be observed in combating this symptom, not to aggravate the principal disease, which, very frequently requires opposite remedies.

The anomalous, psoric, herpetic *eruptions*, boils, and erysipelatous inflammations, which appear on the skin during the course of the disease, are sometimes the effect of the incautious use of stimulating applications to the skin. In that case the treatment should be changed, and confined to soothing, mildly exciting fomentations, if the local affection appears to have a tendency to gangrene; but too active stimulation should never be used to prevent this termination. Astringents should be avoided; for, repercussions are always dangerous in phthisical patients. Two extremes are to be dreaded under these circumstances; 1st, stimulating too much the eruptions, with the view of keeping them up, because by this the anxiety of fever, of want of sleep, &c. are aggravated; 2d, causing the sudden disappearance of the local affection. The practitioner will find the middle course the safest; *Medio tutissimus ibis.*

Occasionally, more or less considerable *depots* are formed in various parts of the body. Phlegmons appear, they are less highly inflamed in proportion as the patient approaches his end. They should be covered with emollient and suppurative cataplasms, and opened as soon as fluctuation is manifest. If they have a tendency to degenerate into fistulæ, no endeavours should be

made to cicatrize them, especially if they are situated in a part where their presence cannot impair the principal functions; such as those which form the margin of the anus. If the patient be so fortunate as to escape phthisis, he should not on any account be released from so salutary an inconvenience. It is the advice of all experienced and observing practitioners. We shall here repeat, as applicable to depots of other parts, what we said respecting eruptions; it is never prudent to stimulate them too much, with the intention of prolonging suppuration, or to attempt to suppress it by styptics. Too irritating and purely mucous and emollient substances are equally improper as local applications to eschars of the skin.

Pains of the limbs are seated in the muscles and aponeuroses, in the articulations, or in the white and dense cellular tissue which immediately surround those organs. They are very common during the long continuance of chronic diseases of the chest. I was in the habit of mitigating them, by ordering gentle frictions, with a spirituous and narcotic preparation, such as brandy, mixed with one-third laudanum, ether, alcohol, or camphorated vinegar, and by recommending the patients to preserve the parts from the impression of cold air. Sometimes pains in the white tissues have a character of mobility, and are accompanied by a swelling, which should cause them to be considered as an indication of weakness and extreme susceptibility of the lymphatic system. This monition should point out to the physician the necessity of maintaining an issue.

In individuals predisposed to pulmonary phthisis, there also occur painful and renitent swellings of the subcutaneous cellular tissue which do not terminate in suppuration. I thought it proper to apply resolvents to them; but I considered them, as well as ligamentous and articular tumefactions, as an evidence of the bad condition of the lymphatic system, and as a recommendation for keeping up issues, (always on the part affected,) even after recovery, should it take place. They might, however, be of a scorbutic nature; in that case they strictly forbid the use of any local excitant capable of inflaming and of dividing the tissue of the skin.

V. *To the ensemble of the individual.*—I here recognise only hectic fever, which is at the same time *hectic from pain*

and from reäbsorption. It would have been difficult to place it elsewhere, because there is no organ which is not powerfully modified by the acceleration of the course of the blood.*

We have already pointed out that this fever coïncided with an extreme susceptibility of all the tissues, and a general disposition to phlogosis and to disorganization, and that it contributed powerfully towards increasing that disposition; we have just furnished the proof of it by the enumeration of the local affections which threaten the consumptive patient, and by the exposition of the means which are most successful in appeasing them. We should now investigate its effects, properly so called, upon the ensemble of the individual.

All fevers of long standing tend to a decomposition of the solids and fluids. Therefore the effects peculiar to the hectic of phthisical patients, are extenuation of the tissues and increased putrescency of the humours. The more active this is, the more defined are these two modifications. If the lungs do not speedily become disorganized, marasmus attains such a degree that the patient appears to be but skin and bone. At the same time all the excretions become putrid as soon as they are removed from the influence of vitality, and the vital heat which they still retain seems to hasten their decomposition. This is not the effect of weakness alone: we shall see in chronic peritonitis and gastritis, men who die in the last stage of emaciation, whose humours had not this tendency to decomposition. And on the contrary we shall find it in individuals exempt from marasmus, who have been for a length of time incessantly afflicted with fever. In cases of phthisis, it is then the pure and simple effect of the acceleration of the course of the blood.†

We can now estimate how slight the pretensions of those authors are, who, confounding two causes whose action is opposed, propose the use of the most violent excitants for the correction of the putridity of the humours in the last stage of phthisis pulmonalis! They had observed that wine, alcohol, and all the diffusible stimulants, assisted in producing a favourable termination

* No doubt; but it is subordinate to the degree of activity of the pulmonary inflammation, of that of the primæ viæ, &c. and it is from thence that the indications should be derived.

† The putrefaction of the mucus and pus of inflamed parts is the principal cause of the fetid odour which exhales from patients with these kind of diseases.

of typhus, in which the excretions are fetid.* Hence they concluded that these means were applicable to phthisis. Had they then forgotten that in individuals attacked with adynamic fever, the whole system is in a state of languor, and that the vital organs are even seized with a fatal torpor,† whilst in the case of the too wretched victim of consumption, the organism is only oppressed by an excess of action and sensation?‡ They have also been obliged to use with their diffusible stimulants permanent tonics, such as cinchona, and astringent sedatives, as mineral acids.

We shall set out with quite a different principle. As marasmus and putridity are the effect of over-excitation, we shall recommend at first, in order to allay them, a strict observance of the precepts which we have given for the treatment of the period of inflammation; that is, to tranquillize and nourish with the least possible stimulation. We shall in addition advise an observance of the most scrupulous attention to the cleanliness of the patient, to frequently change his situation, to avoid alcoves,§ to purify his apartments with the vapour of mineral acids, according to the plan of Guyton Morveau,‖ and to bathe and foment the surface of the body with the topicals which we have indicated for moderating colliquative and fetid sweats.¶

We have just studied the character and progress of phthisis pulmonalis in a summary of a great number of facts observed by ourselves, and in the comparison of these facts with others which we have not witnessed, but which are authenticated in such a manner that no one can question their correctness. According to the influence which the different external agents have appear-

* Alas! these happy effects of stimulants, which I admitted upon hearsay, are not so frequent as has been believed, and when they do take place, they can only be attributed to the violent crisis which these incendiary means determine, that is, to the revulsion; but to attempt it is like playing double or quits, and the losses which I have suffered at that kind of game has forever disgusted me with it.

† See the preceding note. ‡ It is truly so in adynamic, &c. cases.

§ To avoid placing the bed of the patient in an alcove or recess, as is very common in French houses, and which prevents free ventilation.—Trans.

‖ The solution of the chloride of lime is still better.—Trans.

¶ Frictions with the tincture of cinchona fulfil this indication well.

ed to us to exercise over the progress of phthisis, we have arranged the list of alimentary or medicinal substances which may be instrumental in its cure; we have pointed out their use; we have said in what manner the moral and physical faculties were best directed to prevent the fatal termination of irritations of the respiratory organ; but we have not yet produced one single instance in which a cure has been effected. Many persons will think that we have acted improperly, and that the principles of the treatment should have for a basis, not only temporary amelioration, but also complete recovery.

To this we shall reply, that determined to found our general history only upon phlegmasiæ proved by autopsy, we should have been obliged to place our observations upon successful terminations, between the general history and the treatment, which would have made the reader lose sight of the divisions which should serve as a basis to the therapeutic plan. We have preferred affixing general precepts to general summaries, reserving to ourselves the justification of the first by examples. We also think that the details of a particular treatment are read with more interest, and especially with more advantage, when we are acquainted with the different forms of the disease, and the principles which have directed the conduct of the author. We shall therefore continue to pursue the same plan in the clinical and anatomico-pathological researches of chronic phlegmasiæ of the abdomen.

Successful Treatment of Chronic Inflammatory Affections of the Chest.

The following would be a problem worthy of solution: a chronic inflammation of the chest being given, to ascertain, by positive symptoms, whether the viscus is sound, or whether its organization is irretrievably destroyed, and to determine the most certain method of preventing organic vitiation, when it is not completed.

We are yet far from that degree of precision, but we ought not to despair of arriving at it. By dint of repeated observations, we shall learn to distinguish those delicate shades which separate a multitude of symptoms, in appearance the same; but we shall flatter ourselves with having acquired that nicety of discrimination long before really possessing it; it can only be the result of numerous

researches made in all countries without prepossession, without any determined system, and made known with a sincerity which no consideration can alter.

In order to contribute all in my power towards this desirable end, I shall relate some cases of chronic phlegmasiæ of the lungs, which, although bearing a strong resemblance to confirmed phthisis, have evinced by their cure that the organization of that viscus had remained unimpaired. They will also show that the method which I pursued did not impede, and perhaps even favoured their resolution.

We shall first offer the example of a recent and rather severe catarrh, which appeared upon the point of degenerating into phthisis, and the whole progress of which was fortunately arrested by the regimen which we have proposed for the period of active irritation, and for the hectic from pain supposed to be independent of tubercles.

CASE LXII.—*Chronic inflammation threatening phthisis, cured by regimen.*—Jiquel, aged twenty-three years, very ligh flaxen hair, fresh colour, very white skin, marked with freckles, soft flesh, chest pretty well developed, was received at the hospital of Udine, the 6th of January, 1807, for an inflammatory affection of the chest, which had come on the day before. There was violent fever, strong, full, and hard pulse, frequent cough, very difficult, viscid mucous expectoration. No fixed point of pain in the circumference of the thorax.—He was immediately bled from the arm and put upon the most severe antiphlogistic diet.

The cough and fever abated a little but did not yield entirely; and notwithstanding the continued use of mucilages, the necessary precautions for protecting the patient from the impressions of cold, many rubefacients upon the chest, and a blister carefully kept suppurating, the tenseness, fulness, and moderate frequency of pulse, the circumscribed and deep redness of the cheeks, the cough with clear and difficult expectoration, experienced but slight diminution until the twentieth day of the disease. In the mean time, the appetite had increased insensibly, and I could not restrain the patient within the limits of the regimen I wished him to pursue, although I daily pointed out to him the bad effects of his perverseness. He at last consented to be satis-

fied with milk soup twice a day. Mild aromatic demulsions, no wine, an issue upon the chest.

The twenty-sixth day the patient was without fever, without redness of the cheeks, and almost without cough, but feeble. In consequence of his repeated requests, soups and farinaceous food were allowed in addition to the milk.

The twenty-seventh day, slight frequency and tenseness of pulse. Sensation of weakness; redness of the cheeks.—Return to a strict milk diet. The symptoms continued, the cough increased. But a pretty active inflammation taking place in the cicatrized spot, may explain this exacerbation. The thirty-second day he again became tranquil.

The thirty-seventh day, the patient having been restored to the half allowance of food, there was very considerable frequency of pulse, heat of skin. He complained but little, from the fear of being further restricted in his food. I however allowed him soup and demulcent drinks only.

Until the forty-eighth day, slow and progressive increase of food, but still very little meat and wine. At this period, the patient retained of his first symptoms, only a slight frequency of pulse, which insensibly abated, and he left the hospital about the sixtieth day, perfectly recovered from the affection of his chest, and enjoying his usual strength. He continued perfectly well during the whole summer.

Observations.—I could adduce many examples analogous to the one which has just been read; for since I have followed the method which succeeded so well with Jiquel, I have obtained many cures which I had hardly dared to hope for, when the inflammation had not been of long continuance. But this is sufficient respecting this degree of phlogosis, which perhaps does not appear of much importance to those who are in the habit of seeing many patients. We shall proceed to a better defined grade, and one more like confirmed phthisis.

CASE LXIII.—*Chronic inflammation of the lungs resembling suppurating phthisis.*—Choiset, twenty-one years of age; brown hair; large, robust, and muscular; during his march to rejoin his corps in the month of February, 1807, was several times exposed to alternations of temperature, and was seized with a cold which distressed him very much for nearly a month. He

then believed that it had left him; however, he still retained a fixed and severe pain in the lower part of the chest, and coughed frequently. He thought that the pain resulted from the paroxysms of the cough. He continued sixty days in this situation, which was constantly getting worse. For twenty-nine days previous to his entering the hospital of Udine, he was obliged to keep his bed, in a state of constant fever, coughed and expectorated considerably, and could take no other nourishment but milk and broth. When he was placed under my care, the 3d of June, about four months after the attack, I observed:—

Constant cough; very profuse, white, puriform, expectoration; considerable dyspnœa; hot and dry skin; pulse frequent, strong and expanded; general pain in the thorax, most severe at the base; anxiety; yellow paleness of complexion; sharpness of the features; *embonpoint* and form of the muscles preserved.—I first directed a large bleeding from the arm; but as it had very little influence upon the constriction of the chest, I ordered eight leeches to the thoracic parietes and the bites to be fomented with warm water. The parts were afterwards covered with a large cataplasm. Total abstinence from food, fluid or solid. Mucilaginous juleps, decoction of rice slightly acidulated.

It was not until the 8th of June, five days after his entrance in the hospital, that I observed any pleasing amelioration. It is true that the fever had abated previous to this, but the loud, hoarse, nocturnal cough, as well as the puriform expectoration, did not begin to subside until that time. The pulse appeared to me to be about natural; but the yellowish hue of the skin still continued. Gruel and broth was the only nourishment allowed; the mucilages were still continued; but I began to add to them a small quantity of the spirituous *eau de melisse.* Continuation of the cataplasm, from which the patient found great relief.

The 9th of June, the patient, who could scarcely walk, having gone alone to the water-closet, half-dressed, his cough increased, but with only trifling expectoration. The frequency of pulse was not renewed. Fresh precautions given to guard him against the cool air of the mornings and evenings. Appetite began to return. No increase of food allowed.

The 10th of June, less cough; appetite; the complexion continued sallow.—Same regimen.

The 14th of June, the complexion began to assume a hue of health, strength increased, great appetite, no cough.—Gradual increase of food.

The 16th, perfect health; eats the half allowance of diet morning and evening with impunity. Therefore diet did not impair his strength.

The 22d he left the hospital in perfect health, towards the end of the fifth month of his illness.

Observations.—This case, which may be compared with the phthises unattended by ulceration, in which the pus proceeds from the blood, according to De Haen, with the purulent expectoration of Morton, of Bennet, of Chapman, &c. which have been cured, or which have not left any ulceration; with the mucous and catarrhal phthises of Portal, pituitous of Baumes; with the pretended ulcerations of the lungs cured by Dr. Amelung . . . . . ; this case, I say, will prove that the treatment of a disease should not be regulated by its name or by the reputation of an author. In fact, Morton and Chapman have cured it when it occurred as a sequel to continued or intermittent fevers, with cinchona; Portal, under similar circumstances, thought proper to add to this medicine artificial ulcerations of the skin and antiscorbutics; Dr. Amelung has triumphed over it with the acetate of lead and with many other permanent or diffusible tonics, in patients who required to be stimulated; and I, who formerly had arrested this puriform expectoration with tonics in a delicate woman, exhausted by a laborious accouchement, have met with the same success in a vigorous, square-built man, by cooling medicines, and by diet, who, notwithstanding, had suffered from the chest during four months.

From this we may conclude, that puriform expectoration, with hectic fever, does not always imply the disorganization of the parenchyma, and that it should be treated by cooling medicines and by diet in individuals who are still strong, whilst it exacts tonics in those who are relaxed and debilitated.*

If it should now be asked how I could presume that the expectoration was not genuine pus in an individual in whom the pectoral

* Provided there is no dull sound, &c. and that the gastric passages are not inflamed.

affection had followed the ordinary gradations of true phthisis, without reference to the duration of the disease, I should reply, that I saw the proof of it in the preservation of form, and in the good condition of the other evacuations; for I am thoroughly convinced that so profuse a suppuration would have, in a very short space of time, produced extenuation of the tissues, with general fetor of the excretions.*

I shall now freely impart my advice upon the therapeutics of violent irritations of the chest, with puriform expectoration, without marasmus. 1st. If the strength of the individual be united to strength of pulse, there should be no hesitation in ordering an almost complete abstinence from food, and aqueous and relaxing medicines should be given, as in the case just described. 2d. If great excitement and strength of pulse coëxist, with prostration, softness of flesh, and a tendency to œdema, lacteous, gelatinous, and farinaceous food, according to the degree of susceptibility, in small quantities, until the bronchial excretion begins to diminish; for, I repeat it again, much food must never be given to a patient whose lungs are highly irritated, and the more he is relaxed and debilitated, the more it must be abstained from; tonic medicines, however, must be used, for what has been said respecting food, does not in this case apply to medicines. Astringents, which would prove injurious when the vital elasticity is energetic, may fix the extreme mobility of the system, accompanied by a loss of tonic power, and serve as a sedative to the tissue of the lungs. Therefore, whilst I forbid exciting food, I recommend, in this grade of phthisis, exciting medicines of the class of permanent tonics, such as cinchona, but diluted, Iceland moss, acetate of lead, if it is judged proper to try it, and laudanum, for opium is not as diffusible as is imagined, whilst it increases the action of the capillaries of the surface, it contracts and condenses those of the alimentary passages, and, by sympathy, those of the mucous membrane of the bronchia. I have proofs of this which I shall adduce elsewhere.

I could prove, by a comparison of the facts published respecting the grade of pulmonary irritation now in question, that the

* We must also bear in mind the dull sound and the pectoriloquism, so fortunately discovered by Dr. Laennec.

more authors have deviated from this plan, the more difficult and slow have been their cures.

The good constitution of the two patients whose recovery has just been described, by retarding exhaustion and the formation of tubercles, gave great advantage to the antiphlogistic treatment. It will therefore be proper to give the case of a person not so well organized, in order to show that the practice we have recommended has been equally successful with the feeble and the strong. It will be seen by the following case, that it is applicable in those relapses of inflammatory catarrhs, which usually indicate the first appearance of phthisis in individuals predisposed to that disease.

CASE LXIV.—*Chronic inflammation of the chest, often assuming the appearance of incipient phthisis.*—Olivier, aged twenty-eight, of small stature, very light flaxen-coloured hair, brilliant complexion, white skin, small limbs, the extremities of the long bones voluminous, chest narrow, teeth black and decayed, flesh soft, considerable nervous and arterial irritability, in short, all the attributes of a phthisical diathesis, was attended by me at the hospital of Bruck, in Styria, for an inflammatory affection of the chest, which terminated in twelve days.

The first affection resembled a violent catarrh, approaching to peripneumony. I cured it by mucilaginous drinks and by diet: the pulse was strong. It appeared to terminate in opaque expectoration, and Olivier was five days without fever, with an excellent appetite.

At the expiration of that time, and without any visible cause, except, perhaps, too sudden an increase of food, return of cough and dyspnœa, frequent pulse, heat of skin, very severe exacerbations with night sweats, white, thick, rather fetid expectoration, rapid emaciation of the face, cheeks deep red, approaching to violet. He coughed and expectorated continually during the night, he did not complain of any fixed pain in the circumference of the thorax, or of restlessness or uneasiness; he had still appetite, and said that but for the cough he should be well; his pulse was frequent, active, large, and pretty strong, his skin still very hot.

I never saw the early stage of phthisis better characterized; I only observed one circumstance which could give the least hope;

it was the absence of severe dyspnœa and restlessness; it seemed to me that these symptoms ought to exist in true phthisis, when as rapid as this case appeared to be.

I recommended him to keep his chest well covered, and fed him upon thickened milk, rice, and broth; but I did not permit him to satisfy his appetite, which was good. His medicines consisted of mucilaginous juleps, slightly flavoured with the tincture of cinnamon, and I often gave in the evening Sydenham's tincture of opium in large doses, in order to render his nights less irksome.

Olivier continued a fortnight in this state, growing weaker and weaker. At the end of that time the cough decreased, the fever diminished, and the patient began to be convalescent, when the hospital was evacuated. He set out with the others, and notwithstanding the coldness experienced on the journey, he recovered and rejoined his regiment.

Two months and a half after, he reëntered under my care the hospital at Udine, having as before an affection of the chest. He told me that he had been able during the interval of the two attacks to perform all his military duties, but that his cough had not ceased. I at first remarked the same symptoms which had taken place at Styria. I resumed the same treatment; in six days the fever subsided. Œdema supervened; I increased the dose of stimulants, gave wine and preparations of squill. The warmth of early spring aided these measures, and Olivier left the hospital reïnstated in health, and stronger than he had been for a long time. To my knowledge his health continued good nearly two years.

Observations.—This is one of those obstinate pulmonary phlegmasiæ which usually produce tubercles. In this case there is one degree more of intensity than in chronic catarrh: the latter is not attended with a quick pulse and burning heat, and consumption of the cellular tissue. These symptoms are indeed usually observed when there are tubercles in the substance of the parenchyma. It had all the signs of phthisis, even the white and rather fetid expectoration.

Could Olivier have had what are called *vomicæ* or insulated tubercles, which were dissipated by suppuration? Are not all these symptoms rather the pure and simple effect of a phlegmasia chiefly seated in the mucous membrane, and which terminated

before tubercles had time to develope themselves, as in the two preceding patients? Could the opium, which was given in rather large doses, as an active excitant of the circulation in the capillaries of the surface, and as a promoter of perspiration, have checked the determination to the chest, and favoured, in the same manner as heat, the general equalization of the vital actions? Could it, by its constriction, have strengthened the pulmonary mucous membrane by obtunding its susceptibility?

Be this as it may, we can conclude from this case, that a pulmonary phlegmasia may continue some time in an individual the most predisposed to phthisis without producing disorganization, and that a severe diet does not prevent its resolution, or even a speedy return of strength.

Many other cures, as little to be expected as the one just related, ought to have encouraged me to repeat the experiment; but I met with great difficulty in hospitals, because soldiers will seldom be convinced of the utility of a regimen so repugnant to their taste and appetite. The greatest number of conscripts, all young men drawn from the most ignorant class of society, endeavoured to evade my vigilance, and they generally succeeded. Occasionally some comrade, whose appetite was not very good, would give them part of his food; at another time they succeeded in corrupting a nurse, who clandestinely brought them enough to gratify their appetite, however morbid. The fever continued; I interrogated, I insisted, I had spies, and I obtained proofs that they had greatly departed from the dietetic course which I had traced out. It was only amongst men who had received some education, amongst non-commissioned officers, and amongst the *veterans*, that I met with patients willing to be directed. This is the reason why the number of cures bear so small a proportion to what it ought to have been, judging from the great benefit always obtained so long as the sick did not refuse to conform to the regimen.

How many times have I heard from my incredulous patients this objection, which appeared to them unanswerable; *why do you refuse to let me have food, I am not sick at heart?* An expression which, with the lower order of people, signifies that they have not lost their appetite. Could I enter into an explanation with men ignorant of all the natural sciences? The voice of reason being interdicted, it was necessary to persuade by ex-

amples; but with individuals devoid of information, the sensations of the moment are alone regarded.

The same difficulty is no doubt to be met with amongst the better-informed class of society. A multitude of half reasoning beings, ever ready to din into the physician's ear the wonderful word *nature*, will say to him, since nature requires food, she should be gratified. To them I would reply, that nature also requires sleep in comatose diseases; your father has just fallen into apoplexy, why not let him sleep quietly, until he expires.

Some officers, who had placed themselves under my care, after having found the inutility of the most celebrated pectorals, and of blisters, had more confidence in me, and had great cause for rejoicing at it. Five inveterate affections, in individuals constitutionally phthisical, were successively treated by me, by a diet of milk and two ounces of bread, morning and evening. They allayed the cravings of their appetite with whey, barley water, and even with pure milk, when they began to feel better. They are all still in very good health, (1808,) and the following was their condition when I undertook their treatment:—

The first had been affected for two months with an incessant cough, without expectoration, every night; the noise of his coughing disturbed all his neighbours. He had no fever; his complexion was pale and faded, and he did not complain of any fixed pain, but he experienced a great deal of oppression, and was very hoarse. After having been six days on a purely milk regimen, the cough ceased, and did not return.

The second, a tall, thin individual, with a contracted chest, and red cheeks, had just been treated for a venereal affection with mercury, when he experienced considerable dyspnœa. Very soon, notwithstanding pectorals, soothing medicines, and vesicatories, he was obliged to pass the greater part of the night in coughing, and had constant fever with nocturnal exacerbations and pectoral sweats; he profusely expectorated an opaque mucus; he was loosing his *embonpoint* and his strength; a residence of some weeks in the country only procured a trifling amelioration; in short, he thought himself phthisical, and that his doom was fixed, when I determined to place him upon a milk diet. He was treated the same as the preceding case, and cured with more difficulty it is true, but very effectually. This patient, although

quite restored, was obliged to adhere, for upwards of three months, to vegetable aliment and aqueous drinks. Whenever he attempted to return to his former habits, his pulse became hard, his face red, and his chest seemed oppressed by a continual weight. At last, his cure became as complete as it could be.

The third was a light-haired man, having a skin as white as milk, and strong passions; he was recovering from a continued fever which had endangered his life. He lived as any other convalescent person of twenty-eight years of age with a good appetite would do. He had almost regained his usual *embonpoint;* but the pectoral symptoms increased, and he soon lost some of the strength recently recovered. Dyspnœa troubled him night and day; he coughed, and could expectorate a small quantity of saltish mucus only, the excretion of which did not relieve him; his pulse was small and frequent, his skin of a natural heat, his complexion pale yellow, and his features sharpened, and almost completely altered. His mind was disturbed, he believed himself phthisical.—And yet this man, feeble and exhausted as he was by a serious illness, had sufficient strength of mind to submit to a milk diet. On the tenth day he found himself suddenly relieved, and much stronger than he had been since his illness. He continued, however, until the fortieth, augmenting every day the quantity of bread which he put into his milk. He now enjoys the most perfect health.

The fourth was similarly made, but more sanguineous, thirty years of age, and had been afflicted with an obstinate cough for three months. His pulse was large and frequent, and his colour very high, but no purulent expectoration. His cold had increased during the use of anodyne juleps and sudorifics, which were given to him under the impression that it arose from a venereal cause. A purely milk diet restored him to a complete apyrexic state, and freed him from his cough. He was far advanced in convalescence when I left Friuli. I know that he still lives; but I know not whether he is quite exempt from the attacks of phthisis, to which he thought himself liable.

The fifth laboured under cough and dyspnœa, the effects of the displacement of rheumatic pain. He had considerable fever, and was becoming thin, when he submitted to the milk regimen. He completely recovered.

All these cases give reason to hope, that in time more of the

victims of pulmonary phthisis will be saved than hitherto; but physicians must accustom themselves to be apprehensive of it sooner, and to be firm in obliging their patients to submit to privations, of which they cannot foresee the benefit. In order to induce physicians to the perseverance so necessary in some obstinate inflammations, and with patients who are changeable or refractory, I shall give a detailed history of a pectoral phlegmasia which was constantly renewed, and which only yielded to a determined perseverance in the method which I propose.

CASE LXV.—*Very obstinate chronic pulmonary phlogosis, resembling tubercular phthisis in the second degree, supervening on an angiotenic fever.**—Guéhéneuf, twenty-five years of age, a soldier in the eighty-fourth regiment of infantry, having chestnut-coloured hair, white skin, florid and freckled complexion, moderately fleshy, muscles firm, back slightly bent, and shoulders brought rather forward, quick, sensitive, and endowed with a very energetic sanguineous system, experienced in the month of May, 1806, at the hospital of Udine, a continued fever, with a determination to the brain, in the treatment of which, two bleedings appeared to have been of great service in removing a disposition to apoplexy, independent of all the adynamic or ataxic symptoms. This attack terminated in from fourteen to fifteen days.

Subsequently he rapidly regained his strength, and his appetite was very great, which induced me to fear that he might satisfy its demands clandestinely.

After eight days of perfect apyrexia, I observed a pretty severe febrile excitement. The patient complained of a slight loss of appetite and head-ache only; I attributed it to too sudden an increase of food, and I again put him upon a strict diet and acidulated mucilaginous drinks. The fever did not abate, and three or four days afterwards I observed that the patient coughed frequently, but did not expectorate, although he did not complain of his chest. In two days very severe pectoral symptoms, dyspnœa, violent paroxysms every evening, profuse night sweats, sudden emaciation of the face, with redness of the cheeks, eyes sparkling, unequivocal signs of incipient hectic from pain, which

* For the nature of this fever see *Examination of Medical Doctrines.*

threatened the patient's speedy dissolution. These symptoms induced me to think that some portion of the parenchyma of the lungs was in a very high state of inflammation. I still employed mucilaginous medicines. The phlogosis increased in the two following days to such a degree that it equalled the most violent peripneumonia.

I was now guided only by the symptoms; I ordered him to be bled in order to allay the cough which was almost incessant, and to enable the patient to breathe. The next day leeches were applied to the chest, and immediately after, a blister. As the weather was warm, I then directed him to be washed all over the body, excepting the chest, with vinegar and water. The symptoms again increasing at night, I caused the part on which the leeches had been applied to be fomented with warm water, which yielded a discharge during the night. I at last succeeded in calming the pulse, and in exciting, for the first time, a trifling expectoration.

I thought resolution had taken place. Vain hope! After twenty-four hours abatement, the fever recurred with a quick but moderately strong pulse, a loud, dry, and hoarse cough, a circumscribed redness of the zygoma, and Guéhéneuf began to show a strong inclination for food.

From these characters I could no longer doubt its being a true hectic from irritation; the disease had reached the fortieth day, counting from the attack of angiotenic fever, and the eleventh of the relapse into peripneumony; he began to grow thin and debilitated. I thought it proper to allow him meat soups, broths, and rice, but neither meat nor wine; in every other respect I adhered to the method pointed out in the general plan of treatment. It was then the 28th of May.

The 1st of June his face appeared slightly puffed. The 15th, the heat lost its intensity, and the skin became cool; but the frequency of pulse continued the same; the œdema had disappeared, the patient was emaciated, but it was principally confined to the cellular tissue. His cough gradually decreased.

The 1st of July he began to gain a little strength, without the pulse losing any of its frequency. During several days I gave him a mild decoction of bark and gum; but observing that the mouth became dry, I discontinued it. I confined myself to the employment of vegetable regimen, and to slightly stimulating

mucilaginous and demulcent drinks. He felt well; the frequency of pulse was all which gave me any uneasiness.

The 7th of August, a very painful stitch appeared near the left false ribs; very intense febrile excitement, but no cough. I again ordered diet and vesicatories. In four or five days he became tranquil, his complexion appeared better, and he seemed to be gaining flesh, but felt a painful hardness in the calf of his right leg. He had felt something similar in his left leg a few days before. The extremity became stiff, weighty, numb, and he was unable to walk upon it. In examining it, I discovered an extended tumefaction, very renitent and painful, occupying all the subcutaneous tissue of the internal and posterior portion of the leg upon the gastrocnemii and soleus muscles. I ordered emollient cataplasms, and afterwards camphorated liniments.

The 19th of August the continuance of the cellular engorgement determined me to apply a drain to the lymphatic system. I ordered an issue to be established in the arm: he had not, however, any cough, but the frequency of pulse continued, and the *embonpoint* did not return.

The 27th of August, the patient appeared to be emaciating; I attributed it to the issue, to the severity of the regimen, and to the oxymel of squills, which I had directed to be combined with his potions in large doses. The exciting remedies were diminished, which were also counter-indicated by the heat of the weather.

Early in September the engorgement of the leg diminished. I had continued the use of camphorated liniments, I increased his allowance of food. In the course of the month his *embonpoint* and his colour returned. He left the hospital at the end of the month in the full enjoyment of health, on the one hundred and thirty-eighth day of his illness, reckoning from the first attack of inflammatory fever, and the one hundred and ninth from the relapse into peripneumony. His pulse had entirely lost its frequency.

This patient seldom eat meat, because I always found the circulation more active after his having taken it. His treatment consisted of a farinaceous and aqueous regimen, in small quantities, (chiefly thickened milk,) and in the use of mucilaginous drinks, rendered occasionally stimulating with distilled waters, ether, oxymel of squills, and kermes. He took very little opium; that medicine, which, as well as permanent tonics, had always

been of great service to most patients with copious expectoration, appeared to increase, in his case, the dryness of the chest and the tenseness of the pulse.

Observations.—It is consolatary to the science, that so inveterate a case of phlogosis should have been cured in a military hospital, in which the means for varying the regimen are wanting, and in which very little reliance can be placed upon the conduct of the sick.

I have one doubt remaining: if Guéhéneuf had been very copiously bled, until the pulse became feeble, in the first inflammatory fever, would he have experienced the relapse, with peripneumonic symptoms? There is reason to doubt it. But could I resolve upon reducing him to that point, when I saw the disease assume a favourable aspect after two bleedings? And ought I to regret not having done so, having witnessed so speedy a convalescence?

But did he not take food too rapidly, and before the inflammatory disposition was entirely subdued? Should not the convalescent state of inflammatory diseases be treated, as is thought by a celebrated author, in the same manner as inflammation itself, and a strict regard to regimen be observed, particularly when the disease has been short? There would then exist a particular state of the sanguineous system, in which it would be disposed to extraordinary sanguification, to make blood, as it were, at the expense of all the other humours, and this predisposition, or *sanguifying* diathesis, would be susceptible of continuing for several months, notwithstanding evidences of emaciation. This case, as well as many others which I have met with in my own practice, but in which the lungs were not affected, induce me to believe so.*

In all cases, provided the muscles retain their size, I think that an aqueous vegetable diet and mild stimulants, exciters† of serous evacuations, will always furnish the basis for the most solid treatment, and for the most fortunate success.

* Three years ago, I saw in the case of a young physician this exuberant sanguification, accompanied by gastro-encephalitis, to such a degree that it was necessary to take eighteen pounds of blood in twenty days. His recovery, however, was very rapid, and his cure so perfect that he is now a very robust man and the father of a family.

† This young physician could not bear any stimulant whatever.

If the cure of Guéhéneuf appeared difficult, that of the following patient will be thought astonishing. The question in this case was not to allay inflammation, but to remedy its effects, and every thing justified a belief that it had produced tubercular disorganization of the pulmonary parenchyma. It appeared to me the most like original asthenic phthisis of any of the cases in which I have had the good fortune to save the patient; but it evidently made its first appearance with a great degree of irritation.

CASE LXVI.—*Chronic phlogosis of the chest resembling the highest grade of dry tubercular phthisis.*—Sabé, a soldier in the ninety-second regiment, aged twenty-six, light brown hair, pale, tall, long neck, slender limbs, soft muscles, regularly made, contracted a pretty severe cough, which obliged him to enter the hospital at Udine. He had no fixed pain. He in the first instance passed thirty-eight days under my care, experiencing exacerbations of cough and dyspnœa, with pretty severe febrile action. It yielded to demulcents, diet, and vesicatories, and returned as soon as the quantity of food was increased.

On about the 20th of April, 1806, one of these exacerbations continued a longer time and assumed the character of hectic from pain; that is to say, I observed continued frequency of pulse, heat and redness of the cheeks towards evening, night sweats, and emaciation. The patient coughed but little, and expectorated some mucus, only, however, in the morning. Diarrhœa came on in addition to his other troubles. He had no fixed or general pain; the excretions were not fetid; not the slightest appetite; the debility was extreme.

After having observed the continuation of these dreaded symptoms during ten days, I became apprehensive that tubercles had formed, and that the fever which they kept up would slowly destroy the patient, even without ulceration.

I repeated the application of blisters as well to the arm as to the thorax, and adopted the use of mucilaginous potions united with large quantities of ether and aromatics; occasionally I allowed from one to three grains of opium in substance, in the evening, in order to quiet the nocturnal cough. Rice water with a little wine was the usual drink, (the decoction of cinchona either with an emulsion or with gum increased the diarrhœa.) Thick-

ened milk and a few spoonfuls of sweetened wine constituted the entire food. I took great care that the chest should be covered; the heat of the weather, which was every day increasing, also powerfully assisted all these means.

The hectic fever continued in the same degree of intensity about twenty days; the diarrhœa ceased about the middle of that period of time; the cough gradually abated; but when the febrile action ceased, the emaciation and debility were so great, that it seemed as if the fever had discontinued solely from the want of strength or from the destruction of the lungs, and the patient appeared at the point of death: he was in a state of true marasmus. I gave him freely alcoholic and etherized potions, and red wine spiced with the tincture of cinnamon. Sabé continued two days without speaking and almost without stirring, with a feeble and scarcely sensible pulse; he had become almost entirely deaf; at last, he seemed to recover a little strength and powers of mind and asked for food. I again allowed him thickened milk and panada.

Such was his condition on the 10th of May, and until the 30th of the same month he changed very little. He continued thin, still coughed morning and evening, but scarcely ever expectorated. Towards the end of about ten days he began to leave his bed. After meals his pulse was slightly accelerated, and his face appeared puffed. These symptoms announced a difficult assimilation; I diminished a little the quantity of food, but I did not give any bitter tonics. I only increased the proportion of aromatic waters in the juleps, and prescribed a little sweetened wine, diluted with a solution of gum.

From that time I began to perceive that the heat of Italy disposed the stomachs of our French soldiers to chronic phlogosis. I therefore followed the Brunonian precept of giving exciting medicines, proportionately diffusible to the extent of excitability and debility. Never did a cure require so many combinations. I still saw Sabé on the brink of the grave, and I was fearful of precipitating him into it by the slightest agitation. I at length became bolder. All these precautions, which the patient readily seconded, succeeded in calming the cough, and the puffiness gave place to an actual *embonpoint*. Sabé recovered his natural colour and strength, and left the hospital early in July.

The periods of his disease are, thirty-eight days of catarrh,

with irregular febrile exacerbations; twenty-seven to thirty days of consumptive hectic fever; and forty days of convalescence.*

Observations.—What name can be given to this disease? Here was a pulmonary phlogosis, which, after having reduced the patient to the last stage of debility and emaciation, subsided, then ceased entirely, and allowed the body to resume its flesh and recover its natural degree of strength. But why did it last so long? Are there phlegmasiæ of the lungs which can continue from sixty to one hundred days, without being renewed by the repeated action of the original cause or without being kept up by a local disease? If a local disease existed, was it different from tubercles, all the external symptoms of which could be perceived? If tubercles existed, did they merely produce temporary engorgement, susceptible of resolution, because they had not been as yet transformed into a pulpy state? If they resolved themselves into a pulpy state, and had been either expectorated or absorbed, there must have been few in number, for Sabé expectorated very little. Again, as this soldier recovered, it is evident that the irritation which should have produced the tubercles, could not, as is usual, have occasioned the formation of many such tumours.

These questions, upon which time may also throw more light than we now possess, I leave for the decision of physiological physicians.† I shall be satisfied with drawing from this observation the following conclusion, which, in my opinion, affords great consolation to those who devote their lives to the relief of their fellow beings:—*A phlogosis may exist for many months in the substance of the lungs, resemble that usually kept up by tubercles in a very advanced state, and terminate by leaving*

* I am now persuaded that even the mild stimulants which were given to this patient, retarded his recovery; for I constantly obtain similar cures simply by the use of demulcents, farinaceous and gelatinous articles, and by milk, as long as the chest does not sound dull, and there are no ulcers in the lungs. Success may even be obtained when the ulcers remain circumscribed to a single point, but the health continues feeble. A little wine, under such circumstances, may be very useful in assisting digestion.

† Examinations after death have demonstrated to MM. Bayle and Laennec the possibility of curing ulcers of the lungs when they are circumscribed. I have also verified those cures which show themselves by a cartilaginiform cicatrix, around which the parenchyma is dry and corrugated, in the same manner as it is around a cicatrix on the external surface of the body.

the organ in a condition capable of resuming its functions, and of continuing them with as much regularity as before.

The plan I have proposed to follow, requires that, after having proved the utility of the means recommended in cases of inflammatory phthises, I should do the same in reference to asthenic and apyrexic phthises, in which tubercles seem to develope spontaneously; but I have already said that I was deficient in facts sufficiently positive, and the reader knows that I have made it a rule not to produce any case which did not come under my own immediate observation.* I shall, therefore, here terminate the exposition of chronic phlegmasiæ of the organ of respiration.

SUMMARY OF THE HISTORY OF LYMPHATIC INFLAMMATIONS OF THE LUNGS.

I. *Causes.*

1st. The most common are phlegmasiæ of the lungs, peripneumony, catarrh, and pleurisy; when these diseases become chronic, they assume the character of phthisis. 2d. The causes which hold the second rank are irritations of the lungs, more or less resembling genuine phlogosis, depending upon the improper use of those influences, of which it is the province of hygiene to treat. Every profession, and every mode of life, which particularly stimulate the organ of respiration, come within this rank. 3d. In the third are found those diseases, which at first affect other parts than the lungs, and afterwards implicate them in their progress, their termination, or their change of character and of situation, establishing in them a point of irritation. 4th. All these stimulations produce phthisis the more readily in proportion as the individual is thin, relaxed, soft, of a pale colour, and has a contracted chest. There are even individuals in whom phthisis developes itself without a possibility of attributing it to

* I now possess facts, which I then desired to have, and I shall publish them hereafter: it will be sufficient to say, that the phthises which I then called *asthenic*, are only the chronic pneumoniæ of debilitated and anemic men, but that they always depend upon irritation.

any very evident external cause; it then appears to be the effect of an innate predisposition.*

II. *Development.*

1st. A peripneumony, a catarrh or a pleurisy, continuing more than twenty to thirty days, without evidences of resolution, with ardent fever, great dyspnœa, colour bordering on violet, and emaciation. 2d. A catarrh or a chronic apyrexic pleurisy, becoming suddenly complicated with continued frequency of pulse, dyspnœa, and discolouration; the strength diminishes and emaciation begins. 3d. After repeated attacks of pulmonary irritation, resembling pneumonia, catarrh or pleurisy, the frequence of pulse and the heat of skin becomes continual in persons whose chests are particularly stimulated by their mode of life, and by the progress, the termination, or the displacement of a disease; in cases of antecedent exhaustion, as after certain fevers, discolouration and emaciation is the first symptom.† 4th. In persons naturally predisposed, the rapid succession of catarrhs, cause the first appearance of phthisis to be suspected. The continuity of the frequence of pulse and of the heat of skin, renders it certain; but if the patient is inert, cough, dyspnœa, emaciation and discolouration are sufficient to denote its first appearance.

III. *Progress and Termination.*

1st. Phthisis which uninterruptedly succeeds to violent inflammations of the lungs, is generally very rapid in its progress, and if the treatment does not succeed, it terminates in death, before suppuration and marasmus takes place. 2d. Phthisis, which developes itself during the chronic state of the same phlegmasiæ, creeps slowly on, is but little influenced by the action of remedies, and terminates *by induration*, before complete extenuation, and often, in œdema, *by suppuration and consumption*, but more rarely, *by an apyrexic consumption*, without suppuration. 3d. Accidental phthises, excited by the other causes of irritation above indicated, often yield to the action of remedies and termi-

* However, we can always perceive the influence of the causes of irritation at its commencement. The predisposition of the lymphatic system does the rest.

† The dull sound indicates the impermeability of the parenchyma and consequently chronic pneumonia.

nate favourably;* when more obstinate, they are accompanied with hectic from pain, and are susceptible of one of the three preceding terminations; but they are more subject to the two last than to the first, except the variety which succeeds continued fever. 4th. Phthises with constitutional predisposition, yield to remedies in proportion as the predisposition is more or less considerable. *The most active* continue several months with a hectic from pain; then, when this hectic is very intense, death occurs sooner or later, nearly in the same manner as in peripneumonic phthisis; when it is less, the consumption proceeds slowly at first, afterwards, and when the ulcers are formed, it goes on with great rapidity. *The less active* lead the patient on to the last degree of consumption, with a scarcely to be observed frequency of pulse, without febrile heat and without signs of suppuration. They may continue during several years. *Accessory symptoms.*—Very inflammatory phthises, are accompanied with an universal phlogistic sensibility. *The moderate* are at first simple; but when they increase in activity and become suppurating, chronic phlogosis, repeated in the principal viscera, produces incidental phenomena which add to the impairments and hasten the final close. The *slow* and apyrexic are frequently unattended with accessory symptoms, or they have none of consequence.

IV. *Organic Alterations.*

1st. Phthises violently inflammatory and rapidly fatal, leave the lungs in a state of red induration or of considerable sanguineous engorgement, with innumerable tubercular granulations and irregular masses of tubercular matter as though effused in the middle of the parenchyma; some of the most indurated points frequently appear pasty and changed into a red pulp, with an odour more or less approaching to that of gangrene. 2d. Phthises of less activity and of longer duration, have in addition to these disorders, large, white, dry tubercles, reduced to pulp and excavated in the centre; ulcerated cavities, with irregular edges, and as if gnawed, the circumference of which is filled with tubercular

* This assertion, which is true, again proves the impropriety of the word phthisis, for which, as I have said before, that of chronic pneumonia should be substituted. (*See Examination of Medical Doctrines.*)

granulations; and when the disease has had the characters of pleurisy for a length of time, all the alterations which belong to the phlegmasiæ of the pleuræ. (See page 218.) 3d. Dry, slow, and apyrexic phthises of lymphatic individuals, deprived of energy, present a pulmonary tissue so filled with tubercles and depositions of regular or irregular white, pulpy or cheesy matter, that the majority or nearly its entire mass appears to be formed of it. Sometimes in the midst of this matter, calcareous, stony, osseous, cartilaginous, &c. productions are found. *Out of the chest.* 4th. *After very inflammatory phthises,* traces of phlogosis are observed in the other viscera: *after the moderate,* these phlogoses are combined with tubercular productions; *after* the apyrexic, tubercular degenerations analogous to those of the lungs and almost without a vestige of inflammation, are found.

V. *Method of Cure.*

1st. In the incipient state, and when there is phlogosis, endeavours are to be used to remove it by bleeding, by sedative medicines, and by abstinence, by emollient and sedative topicals, warm in winter and cold in summer; by artificial irritations of the skin, at first without division and afterwards with division of its tissue; by those remedies which gently solicit the action of the capillary vessels of the surface, or those of the principal secretory organ, by a milk, vegetable, farinaceous diet, observing not to satisfy the appetite. 2d. In the more advanced state, and when there is no inflammation, the resolution of tubercles is to be solicited by the external and internal stimulating revulsives already pointed out, by the oxides and mercurial salts, particularly the murias per-oxide; by the muriate of barytes, by sulphur, especially in cases of psoric or herpetic complication; by antimonials, by alkaline carbonates and neutral salts; by hydro-sulphurous and hot mineral waters; by the extracts of pungent, corrosive, poisonous, narcotic plants; by pungent antiscorbutics, sudorifics, aromatic essential oils, the concrete juices of fennel, endives, and the saponaceous bitters of the vegetable kingdom.* These means are to be seconded by a diet rather less severe than that in the phlogistic variety, and to which is added animal gelatine, and even the extracts of the flesh of full-grown animals, in cases of

* For all this, see the notes added to the treatment of tubercular phthisis.

natural torpor of the constitution. 3d. In the very advanced state, the predominating symptoms are to be allayed by the means pointed out. *For the chest.* Opium and ether are to be prescribed for the pain and cough; for dyspnœa, the same remedies and bleeding; for abundant expectoration, opium, cinchona, and astringents combined with mucilages; for its suppression, antiphlogistics, emollient vapours, and mild stimulants: for its purulence and bad quality, a judicious combination of all the means pointed out, and by great attention to cleanliness and to disinfection. *For the abdomen.* The diarrhœa is to be moderated by regimen, mucilages, and narcotics: the irritation of the peritoneum by the same means, especially preventing cough. *For the head.* Congestions are to be prevented by derivatives; convulsive mobility is to be checked by tonics. *For the exterior of the body.* Excessive sweats are to be checked by cold, sedatives and mild tonics, externally and internally; eruptions by the removal of stimulants, by demulcents and sedatives; depositions are to be treated with prudence, pains are to be allayed with soothing, narcotic, and slightly tonic topicals, and if there be swelling of the white tissues, an issue is to be applied. *For the ensemble of the individual.* Hectic fever is to be abated by the exact observance of all the precepts given respecting phlogosis; fetor must be guarded against by attention to cleanliness and by disinfecting agents.

VI. *Complication.*

1st. Typhus destroys phthisical inflammation, and produces death: it requires tonics;* other fevers do not affect the general treatment, they may require some other remedies to suit circumstances which have not been pointed out, such as evacuants. 2d. Phlegmasiæ, hæmorrhages, neuroses, and lymphatic affections have been anticipated in the rules of treatment. 3d. Scurvy requires, that to the general and particular precautions recommended for the different cases, the use of green, tender, mucosaccharine vegetables, charged with the water of vegetation, be added, and that their juices should be obtained by expression, without the aid of fire.

* I have made in respect to this, the remarks which the importance of the subject required.

ADDITIONAL CHAPTER, (1821.)

Encephalic Inflammations.

The phlegmasiæ of the encephalon have been long imperfectly known, because they were but little studied in their relations to other inflammations. The symptoms to which they give rise, were attributed to their true cause in a small number of cases only; for example, such as result from wounds of the head, or, without that cause, when one of the two following forms were observed: 1st, acute pain in the head, wild and even furious delirium, increase of muscular power, and convulsions, high fever, with hard and full pulse. These symptoms were attributed to inflammation of the meninges, and the disease was called *phrensy*. 2d. Moderate fever, with comatose delirium, prostration, floccilation, and other convulsive motions, and partial paralysis. These were the characters assigned by nosologists to inflammation of the parenchyma of the brain. It might be supposed, from this, that these diseases could no longer give rise to mistakes; but it was directly the contrary, and for the following reason:—As phlegmon was the prototype of phlegmasiæ, the practitioner who had observed one of the two groups of symptoms which I have just recapitulated, expected to find traces of suppuration in the membranes, or in the substance of the brain, and very often did not discover any thing of the kind; from that moment the supposed characteristic signs lost all their value in his estimation; and as, on the other hand, he knew not how to distinguish traces of inflammation of the mucous membrane of the digestive canal, the most common cause of cerebral phenomena, he attributed them to the malignity of an idiopathic fever.

It is on this account that we find the same symptoms assigned by different authors, at one time to encephalic inflammations, at others to malignant, ataxic, nervous, typhoid, &c. fevers.

The phlegmasiæ which may act most powerfully on the brain are those of the pericardium, of the diaphragmatic pleura, and

peritonitis, especially when seated under the convexity of the diaphragm. This has given rise to the invention of a morbid entity, to which the name of *paraphrenitis* has been given, and which is made to consist in inflammation of the diaphragm. In fact, this disease is composed of the symptoms of phrensy, joined to those which are known to belong to inflammation of the serous membrane lining the muscular partition that divides the thoracic from the abdominal cavity.

Physiological medicine has furnished a solution to all these problems, by teaching that the symptoms called cerebral are really owing to irritation of the encephalon; but that this irritation may be primarily or sympathetically induced by the phlegmasia of another organ. It thus explains why in certain diseases no traces of suppuration are met with, although during life the symptoms common to meningeal inflammmation had been observed.

But the physiological doctrine has not stopped at this point; it has proved that even whilst no purulent matter was found in the brain and its membranes, these parts exhibited at least positive traces of the irritation which they had suffered, and even in cases where this irritation had been communicated to them through the influence of another organ in a state of phlegmasia. In fact, whenever more or less violent shock has been experienced by the nervous system of relation, such as from delirium, permanent convulsions, or convulsive actions; if the brain, the spinal marrow, or their membranes are not in a state of suppuration, at least they present more consistence, opacity, and sanguineous injection than in a natural state, so that it may be truly said that nervous symptoms cannot continue during any length of time, without leaving traces after death of having existed; that this assertion may not be contested, we must agree respecting the words *traces of cerebral irritation.*

I have already touched on this question in the autopsy of Beau, the first case of gastritis recorded in this collection. I was struck with the density as well as with the injection of the cerebral substance, and upon it, I asserted, as will be soon seen in the old text, that the acuteness of painful sensations must suffice for the production of a cerebral congestion. When I was established at the hospital of Val-de-Grace, in 1814, I again took up the idea, and developed it in my clinical lessons and in my private lectures.

From repeated observations on diseases, acute as well as chronic, in which the sensitive apparatus is more or less interested, I derived a series of facts, which I have unremittingly taught for six or seven years: the principal are, 1st. That most commonly, except in traumatic cases, the morbid irritation is communicated to the brain by the mucous membrane of the digestive organ. 2d. That cephalalgia, delirium, gastric convulsions, that is to say, those provoked by stimulation of the mucous membrane of the stomach and small intestines, are the immediate effect of a sympathetic irritation of the brain, which may be considered as the first degree of inflammation of that viscus. 3d. That often, in the course of phlegmasiæ of the digestive organs, this first degree progresses and amounts to inflammation, either in the substance of the encephalon or on its surface, and in the membranes which envelope it. 4th. If death takes place before the sympathetic irritation of the brain has had time to become phlegmasia, post mortem examination exhibits only hardness and injection in the cerebral substance, injection in the pia mater, or opacity in the arachnoid tissue, according as the irritation has been deep-seated or superficial, whilst the digestive organs present unequivocal traces of a truly inflammatory state. 5th. That in individuals predisposed to inflammation of the brain, the sympathetic influence of the stomach when phlogosed is sufficient to carry cerebral irritation to the point of inflammation; then the cerebral symptoms predominate over the gastric, and the autopsy discovers in the cavity of the cranium, organic disorders more closely approaching those of phlegmon, or in some instances even true suppuration. 6th. That in cases in which the cerebral irritation is primary, it cannot continue long, or reach a certain height, without inducing gastric irritation, which is demonstrated by the readiness with which traumatic affections of the encephalon provoke vomiting. 7th. That this sympathy of the inflamed brain with the stomach and its connexions always produces a certain degree of gastritis and sometimes hepatitis. 8th. That apoplexies, paralyses, mania, catalepsy, tetanus, and epilepsies ought to be classed with cerebral phlegmasiæ as expressing different degrees of irritation in the encephalic structure—an irritation which produces either hæmorrhage, sanguineous extravasation in the parenchyma, suppuration, or the induration called scirrhus, &c.; and that chronic irritations of the encephalon have the same relations with the

gastric passages as acute ones. I insisted particularly on the point that gastric stimulations frequently kept up that of the brain, and consequently mania. 9th. That all cerebral irritations, under whatever form they manifest themselves, whether by that of pain and convulsions, or by mental aberrations, terminate ultimately in partial or general abolition of the functions of relation; that is to say, in paralysis, idiocy, or in apoplexy, and that the disordered states then manifested in the encephalic structure ought to be attributed to inflammation and its consequences. In short, relying on the observations of others, as well as those which were original with myself, I asserted that those softenings, *(ramollissemens,)* and atrophies of one hemisphere of the brain, which are observed in insane persons who have died in the chronic state, with paralyses, idiocy, &c. atrophies which produce inequality of volume in the two sides of the cranium, were, as well as the collections of purulent matter, serous effusions, and scirrhous indurations, a pure and simple effect of inflammation, and that all these disorders must have been preceded by a contrary state of things, viz. an excessive injection and an increase of consistence, such as is usually observed after acute phrensies and mania, which terminate fatally in a few days.

Such is my profession of faith, promulgated since the year in which I began to lecture, and afterwards published in the *Examination of Medical Doctrines.* It may hence be inferred, that to compile a treatise on chronic phlegmasiæ of the brain, it will be necessary to consider every kind of mental affection. But it is not my intention to undertake this task, still less to insert it in this work, which from the numerous observations it contains, is already sufficiently voluminous. I shall content myself with the relation of a certain number of facts, which tend to strengthen those published by M. Lallemand, in proof of the inflammatory character of several cerebral affections, from which that appellation is yet obstinately withheld. This is the only work whose conclusions I have adopted, because it is composed in the spirit of the physiological doctrine, by one who has taken the pains to study it, but who has not yet exhausted his subject. Be this as it may, I shall quote from M. Lallemand a summary, which shows clearly enough the state in which that author had left the theory of cerebral affections at the end of the year 1821, the period of the publication of his last letter.

"I ought first to point out to you that they, (cerebral phlegmasiæ,) may be distinguished from the moment of their first appearance; I would even say that they do not present well defined characters, except in their first stages, and in proportion as they become aggravated, the distinctive symptoms become more obscure; they all terminate in more or less general and complete paralysis of sensation and motion, an abolition of the functions of sense and intelligence, a state of coma; in short, a general prostration of the whole economy. It is then the first symptoms which it is important to study with attention, as it is also most necessary to act with energy on the first appearance of the disease.

"The spasmodic symptoms induced by inflammation of the arachnoid membrane, in ninety-nine cases in a hundred, affect both sides of the body; they are usually attended by delirium, and never by paralysis. Those which are attributable to inflammation of the brain, are confined to the opposite half of the body, and sometimes to the face and arm; they are not accompanied by delirium, but very quickly followed by paralysis. When inflammation of the brain succeeds that of the tunica arachnoidea, besides the symptoms which characterize the first, paralysis seizes upon one side of the body, and displaces the spasmodic phenomena; the convulsions continue in the other unparalysed side. If the inflammation of the arachnoid succeed to that of the brain, all that side of the body first affected remains unchanged, whilst the other is attacked with convulsive movements, without any paralysis. Delirium under these circumstances is very rarely seen.

"Paralysis brought on by inflammation of the brain, is distinguished from that which is the result of hæmorrhage, by the spasms which precede or accompany it when suddenly induced, and by the slowness of its progress; by the pain of the head, and the paralysed limbs, &c. when the spasmodic phenomena are absent.

"When inflammation of the cerebrum succeeds hæmorrhage, and the effusion is not sufficient to annihilate the functions of that organ, palsy occurs more or less suddenly, some days after which, spasmodic symptoms appear in the paralysed limbs. If to this again is conjoined inflammation of the tunica arachnoidea, the limbs of the side not paralysed become affected with convulsive motions.

"Should a new inflammation follow a previous attack, and it

be situated in the opposite hemisphere, the same phenomena will be observed in the healthy half of the body, as in that which had been primitively affected, and the first symptoms are influenced by it. If it exist in the same hemisphere, the spasmodic symptoms reäppear, and the paralysis increases, whilst the original inflammation has produced only a trifling alteration of the brain, and left consequently but a slight paralysis. This case is precisely the same as that of moderate hæmorrhages, which are followed by inflammation; except that in either case the former disease manifests the characteristics which properly belong to it. When great alteration has been produced in the brain by the former inflammation, the relapse is marked only by increased severity of all the symptoms, coma, and a general collapse, such as occurs when inflammation follows a profuse hæmorrhage." *(Recherches Anatomico-pathologiques sur l'encéphale, lettre 3e.)*

I shall now adduce some facts which will confirm or modify the propositions of Professor Lallemand, and doubtless will lead him to new investigations.

Chronic cephalitis, hemiplegia, apoplexy, purulent collection.—M. Thavernier, a captain in the —— regiment, forty-two years of age, very light-coloured hair, florid complexion, white skin, moderately stout, but well formed, received in the middle of the Palais-Royal, in May, 1815, ninety days before his death, a letter containing bad news. Whilst perusing it he remained motionless as if thunderstruck, and the left side of the face became paralysed and drawn to the opposite side. He was taken home and attended to. He recovered, but two days afterwards he suffered a relapse, and was brought to Val-de-Grace. When I first saw him, the distortion was only observable when the muscles of the face were brought into action; the countenance was stupid, and the patient silent. When peremptorily ordered to put out his tongue, the mouth opened, but the tongue was not protruded. He had complete paralysis of the arm, thigh, and leg of the right side. The pulse was full, hard, and slow; the heat of the body was but little increased, and respiration rather stertorous. He was bled largely from the arm, and forty leeches were applied over the jugulars; but without amendment.

The subsequent days I administered an emetic and cathartics,

which procured profuse evacuations, without any relief being afforded. The bladder was also ascertained to be paralysed, and it became necessary to leave a catheter in it.

After these preliminary measures, I had recourse to the stimulants recommended in similar cases with the hope of obtaining their revulsive effects. A decoction of the flowers of the arnica montana, with acetate of ammonia; frictions with the tincture of cantharides upon the loins, and four or five drops of the last in a pint of emollient ptisan, were administered. The result of which was an irritation of the urethra, gland, and prepuce, which began to ulcerate. Emollients alone were then used, and a blister was applied to the nape of the neck.

However, subsequent to this treatment, and seven or eight days after the arrival of the patient, the watchfulness was observed to be increased, stupidity to be diminished, the appetite to improve, and the pulse to become softer, but the paralysis continued as before. I then resorted to the use of nux vomica, which was at that time extolled as a remarkable excitant of the spinal nervous system. I was the more anxious to make trial of its efficacy, as Doctor Gérard Girardot, an excellent observer, had declared in a thesis defended in 1812, that this substance exercised a very remarkable action on the encephalon. After two or three days employment of the remedy the patient began to mutter, and seemed to have visions and hallucinations. He flew into a passion with those who waited upon him, emptied the urinal into his bed, became painfully restless and noisy during the night; but withal no diminution of the paralysis. This irritation being therefore considered as so much loss to the patient, I discontinued the medicine a fortnight after its employment, upon which the fantastic delirium disappeared.

I tried the effect of drastic purgatives; they induced diarrhœa, and I perceived that the patient was attacked with colitis. This course I abandoned, and the diarrhœa was checked. The vinum antiscorbuticum and the vin. kinæ produced no change in the hemiplegia.

After a month's interruption of the use of the nux vomica, I resumed it, and again witnessed its effect of producing hallucination without any improvement in the muscular motion.

A month later it occurred to me to administer the liquor of Van-Swieten, with which I had succeeded in curing a case of

general palsy, in Andalusia; I gave it with the same precautions as in syphilis. From that moment the patient improved, he pronounced certain words, put out his tongue, and executed some movements with the palsied leg. I persevered, and he continued to improve slowly. He became so much better as to be able to sit up alone in his bed, and to stand up, assisted by the paralysed limb. He spoke, although with difficulty, and replied to a greater number of questions than formerly. Some idiocy was, however, still remaining, his pulse was very tranquil, respiration as free as in health, and appetite excellent.

In this state of things, the progress of which we watched with extreme pleasure, M. Thavernier received another letter, said to be from his wife; he read it and instantly there occurred loss of speech, general immobility, abolition of sense, increase and hardness of pulse, stertorous respiration; in short, complete apoplexy. The use of bleeding, emetics, vesicatories, &c. proved ineffectual—the patient was moribund, and died in three days after the attack.

Autopsy.—*Head.* The sinuses somewhat engorged; a little thickened serosity in the right lateral ventricle, none in the left, but the hemisphere on that side softened and depressed in the middle. On being divided, several abscesses were observed communicating with each other in the substance of the lobe, but not opening between the convolutions. The parietes of these cavities were of a grayish colour, irregular, and imbued with a purulent pulp, but rather contracted than distended, as if the pus had in part been resorbed. The whole hemisphere was much diminished in size. The examination of the other cavities afforded nothing of pathological interest, save a small yellow ecchymosed stain towards the *bas-fond* of the stomach.

Observations.—This case presents a chronic cephalitis induced by a moral cause, and of which paralysis gave the first intimation. I agree with M. Lallemand, in thinking, that if M. Thavernier had fallen a victim to the first attack, a softening of the brain with sanguineous effusion would have been found, and that the abscesses were but the result of that first disorganizing impulse, or a continuation of the primary irritation.

It will be observed, that if the revulsive medicines which I at various times employed, did not succeed, at least they did no harm, whilst the nux vomica excited an irritation in the encepha-

lon and primæ viæ, which must have been attended, but for its discontinuance, with fatal consequences. How can the amendment obtained by the use of the liquor of Van Swieten be accounted for? Must we admit a contra-stimulation upon the principles of Rasori? The numerous cases of gastritis and even of chronic pneumonia which daily ensue from the influence of this preparation when carelessly administered, forbids, I think, our adopting the theory of the ingenious Italian. I believe we must resort rather to the action of the remedy on the excretory and depuratory organs. I entertain this opinion, because in my practice this formula has caused copious evacuations of urine, a considerable increase of appetite, and cured several dropsies, even ascites, when no obstacle to its administration was offered by irritability of the digestive organs. Other practitioners might repeat these experiments, and shed new light on the modus operandi of corrosive sublimate. My own impression is, that in all cases where it cures chronic affections, it acts by a genuine revulsion.

The following case is also one of cerebral phlegmasia of such intensity as to have caused a collection of pus without the manifestation of any convulsive phenomena.

Cephalitis and pneumonia, hepatitis and gastro-enteritis. —Abscess in both hemispheres of the brain, and in the liver: hepatization of the lungs.—Being at Pau, in November, 1813, entrusted with the direction of the medical department of the military hospitals of the eleventh division, I attended for twenty-two days, conjointly with the late Martel a young physician full of zeal and a love for truth, a soldier whose case presented the following particulars.

He was twenty-four years of age, dark complexion, fleshy, robust and sanguineous. On his arrival he stated that he had been ill a fortnight; but a certain embarrassment observable in his ideas prevented us from attaching much credit to his declaration, for he could give no exact account of the symptoms which ushered in the attack. He had been passed for several days from hospital to hospital, from the military lines on the heights of St. Jean-Pied-de-Port to Pau. He was taciturn, scarcely replying to the questions asked him, his eyes wide open, but with a stupid expression, and he uttered no complaints; he was able, however, to get up to satisfy the calls of nature. His face was very red,

particularly the cheeks; tongue red; abdomen slightly painful on pressure; skin of a very healthy colour, but of a burning heat to the touch; pulse rather more frequent than in health, pretty full and active; appetite very indifferent. He was treated by demulcents and confined to a severe diet.

After ten or twelve days employment of these means he seemed to me to become convalescent; there was no longer heat of skin or frequency of pulse, and his appetite returned, but the taciturnity and the stupidity continued. He rarely answered, and always in a very laconic manner; constantly refused to rise, but often sat up in bed, and looked with a vacant air upon what was doing around him. He only spoke to ask for food, or to satisfy some other want. His regimen was very strictly attended to on account of an obstinate redness of the tongue. He contrived, however, to obtain some food.

This amendment lasted but four or five days; the burning heat and the frequency of pulse soon reäppeared; diarrhœa supervened, and the febrile reäction ceased entirely. The skin became dull and of an earthy hue; the stupor increased; the animal wants were no longer perceived, and the patient expired without any convulsive phenomena, and without a struggle, on the twenty-second day after his arrival, and according to his own declaration, on the thirty-seventh from the attack.

Autopsy.—The muscles were of a large size and good colour. *Head.* Two large abscesses, filled with a greenish, viscid, inodorous pus, were found, each occupying the centre of one hemisphere of the brain, having no communication with the lateral ventricles, but circumscribed by a whitish cyst formed of concrete pus, easily torn, besides a considerable injection of all the vessels of the encephalon. *Chest.* Semi-hepatization of the left lung, which was throughout very much loaded with blood. *Abdomen.* Liver of enormous size, very sanguineous, occupying both hypochondria, adhering to the spleen, of very firm consistence, and having in its largest lobe several collections of white consistent pus, like that which results from ordinary phlegmonous inflammation. The mucous membrane of the stomach was of various degrees of redness; that of the intestines, and especially of the colon, was red or black, and much thickened.

Observations.—It is certainly to be regretted that this disease could not have been observed from its commencement: how-

ever, the total absence of convulsive action or paralysis during the twenty-eight days that the patient was under our observation, induce the belief that he passed through all the degrees of cerebral irritation without experiencing any very decided nervous phenomena. Other facts will doubtless aid the above in showing that stupidity, loss of memory, and general torpor, are sufficient in many cases to establish the existence of inflammation of the encephalon. In fact, the redness of the tongue, the burning heat, and the defective appetite, seem to correspond in this case to the gastro-enteritis, whilst the circumscribed redness of the cheeks belong to the inflammation of the pulmonary parenchyma. If a patient similarly situated should come under my notice, I would again recur to the liquor of Van Swieten, and with even more confidence, since cases of cure are recorded of cerebral phlegmasiæ being obtained by means of salivation, which had been excited by mercurial frictions.

The following case, which was drawn up at Val-de-Grace, seems to me deserving of the attention of practitioners. We will first relate it, and then see what conclusions can be drawn from it.

Scirrhous tumour of the medulla oblongata of the left side, softening of the brain and purulent effusion into the corresponding hemisphere, with chronic gastro-enteritis.—An officer, tall, and of strong constitution, thirty-six years of age, was placed under my charge during the summer of 1819, with all the symptoms of gastro-enteritis, which, from having been acute, had become chronic. He seemed in a state of stupor; tongue and conjunctiva red; without appetite; complexion of a deep red, and as it were spotted with livid patches, the rest of the skin of nearly the same colour and very dry; the abdomen retracted, and in such a state of prostration as to confine him to bed. He occasionally vomited—pulse small, contracted, not more frequent than natural.

This disease had been kept up and exasperated by wine and other tonics; I treated it by the means usually employed by me in diseases of this class.—Strict diet, demulcent drinks, and the application of some leeches. Amendment was rapid and convalescence perfect when I quitted the service; all that he required was to regain strength.

Five months afterwards I was again placed in charge of the ward

in which this officer was. I found him with hemiplegia of the right side. He sustained himself feebly on the weakened limb, but the arm was deprived both of sensation and motion; his complexion was pale and of a yellowish hue; he spoke with difficulty and his mouth was drawn to the right side. He told me that the paralysis had come upon him by degrees, and that notwithstanding all the tonics which had been given him to complete his convalescence, he had grown weaker every day. Three months only had elapsed since motion had appeared to diminish in the affected muscles. He spoke but little, but his ideas were coherent. He had a pretty good appetite, and was free from fever.

Although I suspected a chronic phlegmasia of the encephalon, I thought it best, considering the good state of the tongue and of the appetite, to administer some stimulants to the gastric passages, in order to effect a revulsion, and for this purpose I gave the arnica and some purgative decoctions; but the want of appetite, the redness of tongue, the heat of skin, and a trifling acceleration of pulse, soon warned me that the mucous membrane of the stomach was not in a proper condition for them. I returned to the employment of demulcents, and calmness of the system and appetite were restored. There was no change in the paralysis.

A month afterwards I made trial of the nux vomica: it produced such decided and sudden gastric irritation that I was soon disgusted with the use of it: it even excited pains in the right hypochondrium, in all the limbs, and induced convulsive movements which alarmed me; for I am not one of that class of practitioners who obstinately augment the dose of a stimulant, notwithstanding its bad effects. I believe if some cures are effected by this method, it does not fail in return to immolate many victims.

However, my patient improved a little, but I soon perceived that his left eye was losing its transparency, that it was becoming impaired, and that the paralysis had extended to the lid of the same side. I confined myself to blisters and setons, and to soothing medicines internally administered, notwithstanding which the abdomen still continued rather hot, and the complexion of a yellow and pale tint. Progression was more difficult, and speech much more embarrassed. Who could be mistaken upon the progress of the encephalic irritation? The patient remained in this state for some weeks.

One morning I found him in the most violent apoplectic con-

dition, with total loss of sense, stertorous breathing, face very much congested—pulse quick, full, and hard—and burning heat of skin. I directed arteriotomy of the left temporal artery; it produced no effect, and the patient expired on the following day. The whole duration of the disease was eight months, that of the cerebral affection lasted about five.

Autopsy.—*Head.* Considerable sanguineous injection; softening and depression of the left hemisphere, which was much less congested than the right. The left ventricle contained much thickened serum, and the substance of the hemisphere so much softened as to be nearly fluid. The blood-vessels in it were scarcely visible. The optic nerve was diminished in volume, and softened like the rest of the cerebral substance of that side. The right hemisphere was nearly of the usual consistence, and the ventricle contained some serum, but less abundant than the other, and nearly limpid. The vessels were well defined on this side. The cerebellum offered nothing remarkable, but on examining the base of the brain, we were struck with an unexpected appearance. At the upper part of the medulla oblongata, and in the thickness of the corpus pyramidalium of the right side a hardness could be felt, which caused a very apparent projection; it was opened, and was found to be a grayish scirrhous tumour, more consistent than the neighbouring parts, analogous, in fact, to that degeneration described by M. Laennec, under the name of *encephaloid*, or *cerebriform*. It was about the size of a common chestnut, (French,) not isolated from the rest of the cerebral structure, but seemingly continuous with it, and differing from it only by its firmer consistence. The chest presented no uncommon appearances, but we found in the abdomen the liver yellow and voluminous, and the mucous membrane of the duodenum of a brown, red, and thickened appearance, offering evident traces of phlogosis. The other small intestines partook more or less of this kind of alteration. The stomach was in nearly the same state, and the only healthy part was the mucous membrane of the large intestines.

Observations.—In this case we first observe gastro-enteritis, exasperated by the use of stimulants, advancing towards a cure under the influence of sedatives, interrupted in its gradual subsidence by a new action of irritants, and converted into a chronic affection. During these alternations, an attack of paralysis an-

nounces the development of a new point of irritation in the encephalon, without pain or any local sensation from which its immediate seat could be inferred. Moreover, it seems to me that the left corpus pyramidalium was first affected, which will account for the weakness of the muscles of the right side, and for the progress of the irritation to the hemisphere of the same side; the degeneration of its substance, and the compression exercised by the effusion on the optic nerve, induced the blindness of the corresponding eye; and lastly, that the apoplexy marks the sudden augmentation of the already existent irritation, and its extension to the right hemisphere, which until then did not participate in the disease.

As for the gastric symptoms, they are explained by the traces of phlogosis in the alimentary canal, and the influence which they exercised over the liver is shown by the yellow colour and degeneration of this viscus.

The pernicious effects of irritants, and above all, of the nux vomica, is as manifest in this as in the preceding case; but I think that another question may be asked. Had M. . . . . the germ of the scirrhus of the medulla oblongata previous to the occurrence of the gastro-enteritis? or did that phlegmasia determine it by a sympathetic influence? What a field for conjecture is here open to us. I shall not engage in the consideration, but only suggest, that most encephalic phlegmasiæ are really induced by gastric irritations. Other facts perhaps may render this clearer; in the mean time I shall offer another example of gastro-encephalic irritation, which seems to me to concur to a certain extent in this object.

Chronic arachnitis, mania—case reported by Doctor Damiron, physician to Val-de-Grace.—Libert Stanilas, aged forty-six, "*pharmacien major*" to the depot of medicines at Lille, was transferred from the hospital of that town to Val-de-Grace, where he was to remain until he could be suitably placed in some lunatic asylum.

From what I was able to collect, it appears that this pharmaceutist had suffered much in the retreat from Moscow, in 1812, and that since that disastrous campaign, he had been subject to attacks of epilepsy at irregular periods. During the interval of these attacks he became at times deranged, and his memory so altered as

to forget occurrences which had taken place the previous moment, whilst he related with much accuracy those which he had witnessed twenty-five years before. He recollected his old companions, but fancied that he had long known persons whom he had seen for the first time the evening previous. Hence, on the second visit I paid him, he was much surprised to see me, and enquired how it happened that after so long a separation, we had met in the same hospital. This aberration of memory continued until his death.

He informed me that he had long been subject to violent headaches, and that since this period he had been deprived of sleep, and had copious night sweats. He told me that the physician who attended him at Lille, had repeatedly applied leeches and cups on the left side of the abdomen, where he often experienced violent pain, and that he had taken a considerable quantity of cinchona. *I could find no marks of the application of leeches or cups.*

M. Libert's appetite was voracious, and he had frequent faintings during the intervals of his copious repasts, which ceased only on the introduction of new aliment.

On the 19th of May, at 9 o'clock, A. M. he had a violent fit of epilepsy, which continued the next day. The pupil was much dilated, he foamed a little at the mouth, his teeth were closed, and his limbs rigid. I directed blisters to the legs, thighs, arms, and over the whole length of the vertebral column. Recollection returned for a few moments, but he relapsed into his former state, and died on the 21st, during the day.

Examination of the body.—Embonpoint considerable, cellular tissue much loaded with fat. *Head.* The membranes of the brain highly inflamed, and covered by a thick layer of healthy pus. The ventricles, which were much dilated, contained much limpid serum, and a considerable serous effusion existed at the base of the brain. The cerebral substance was of firm consistence. *Thorax.* The thoracic organs were all in a sound state. *Abdomen.* The omentum loaded with fat and slightly red, and the mesenteric ganglia engorged. The stomach was of large size, and highly inflamed; its tunics were thickened, and the mucous membrane was destroyed in the cardiac region, and in the lower curvature of this viscus. The small and large intestines were as violently inflamed as the stomach; but exhibited no marks of

ulceration. The liver, which was of a large size, as well as the spleen and kidneys, appeared healthy.

Observations.—According to the theory I have thought proper to adopt as to the manner in which cerebral phlegmasiæ are induced, independently of local causes, I think I may assert that that of M. Libert's was excited by a chronic gastritis, which the patient had long kept up by an over-stimulating regimen, and by the use of emetics, purgatives, and tonics. In truth, this officer although not addicted to drunkenness, was fond of good living, and his notions on the subject of medicine did not lead him to the adoption of measures calculated to moderate its pernicious effects.

From this case, conclusions may also be drawn, which must concur in throwing light upon the progress of gastro-cerebral phlegmasia. Although M. Libert was the subject of decided arachnitis, he never had convulsions, except in the fit which ended his existence. Notwithstanding the extraordinary disorganization of the lining membrane of the stomach, the digestion of the patient remained unimpaired, although productive to him of painful sensations, which affords a most triumphant reply to those who refuse to acknowledge inflammation of the stomach, unless there be loss of appetite, vomiting, and the patient be confined to his bed, &c. &c.

It will be equally perceived from this case, that even the most intense gastric and encephalic inflammations may coëxist with a state of apyrexia; a circumstance explicable only on the supposition that time and habit have blunted sensibility, and subdued in a manner the sympathy which connects the heart with the other organs.

It would be easy for me to produce from my records of cases, many other examples of encephalic phlegmasiæ, established by post mortem examinations; but the numerous researches of Drs. Riobé, Rochoux, Serres, Rostan, Lallemand, Parent-du-Chatelet, Martinet, and others, to say nothing of the facts recorded in medical journals, which are now very abundant, will satisfy the curiosity of those persons who may wish to study these cases with reference to their pathological anatomy.

I proceed now to consider the therapeutics of phlegmasiæ of the encephalon.

Treatment.

The treatment rests on two fundamental points, direct sedation and revulsion.

The former is to be obtained by general and local bleeding and the application of cold to the head. Revulsion is effected at the same time with sedation, when bleeding from the foot, the verge of the anus, or some other distant part is practised; and when the inferior extremities, or even all the lower parts of the body are immersed in warm water, whilst refrigerant topicals are at the same time applied to the head.

Revulsion alone is effected by stimulating distant parts only, or the digestive canal, by evacuant remedies; but to be useful, it should produce a sedative effect upon the brain. These different means should be repeated with perseverance so long as the irritation for which they are employed continues. They always prove effectual when we are fortunate enough to be able to apply them before disorganization has occurred; but it must be remembered that it is more readily induced in the brain than elsewhere, owing to the extreme delicacy of its tissues, and that it often runs on with great celerity.

Revulsion rarely succeeds when tried before sedation or whilst congestion is violent and inflammation very high, and whilst the irritation, by which it is attempted to be induced, acts with too much energy on the diseased part; moreover, it should be stated that the alimentary canal is not always disposed to effect revulsion, for its mucous membrane is, of all the tissues, that whose stimulation is most readily transmitted to the brain. This fact deserves attentive consideration, in order to avoid the errors daily committed by this practice, since the celebrated Desault has caused emetic draughts to be frequently administered in traumatic cerebral inflammation. The inconvenience of this perturbating treatment must be much more serious when gastro-enteritis is complicated with cerebral inflammation, a complication of the most common occurrence.

Tonics, properly so called, and pretended antispasmodics, can never be useful except during convalescence.

We proceed to relate some cases cured by the two modes of treatment just recommended.

Cerebral congestion occurring during delivery, which took place without pain.—Cured by the use of leeches.—In 1803, having visited Saint-Servant on some family affairs, I was requested to see a young woman, nineteen years of age, seriously ill, and the details of whose case I now find amongst my notes. This woman, who had reached the full time of her first pregnancy, became affected with giddiness during labour, and imagined she saw lights, a coffin, and a large black dog who advanced to devour her. These hallucinations having lasted some minutes, she lost her senses, and fell into a comatose state, and was delivered by the sole efforts of nature, without being aware of the fact. As she did not recover her faculties, I was sent for some hours after her delivery.

She was young and well-formed; her face was livid, respiration stertorous, and pulse slow. This calm was interrupted from time to time by very violent, irregular, convulsive movements, during which the colour of the face deepened, and she foamed at the mouth; there was no lochial discharge. I examined the placenta, which appeared to be entire. I directed half-baths, enemata containing honey, and sinapisms to the inferior extremities. The use of drinks was interdicted by a firm closure of the jaws.

As I was still young, and but little accustomed to the practice of medicine, having hitherto only applied myself to the study of surgery, I knew not what to do. The violence of the paroxysms alarmed me, and induced me to pronounce a very unfavourable prognosis. Not daring to bleed, on account of the feebleness of pulse, and the frequency of the convulsions, I confined myself to the use of revulsives applied to the feet, legs, and thighs. But as the patient was still alive on the following morning, and as no paralysis existed, I decided, on account of the extreme lividness of the face, to apply twelve leeches to the neck.

The blood flowed freely, and as it escaped, the stertor and convulsions diminished, until at length the patient regained her consciousness. On being recalled to her at this happy change, I found her quite aroused, the countenance very animated, eyes brilliant, manner lively, and in a state of the most singularly loquacious and joyous delirium.

The pulse had become frequent, strong, and elastic; the skin moist, and there was even a slight sweat, as is often seen in milk fevers. The lochia appeared, and the breasts, hitherto flaccid,

seemed to have acquired a slight turgescence. Her child was presented to her, and at first she refused to take it to her bosom, asserting that she had not been delivered. She was at length persuaded to apply it to her breast, which was repeated until the secretion of milk was fully established.

The febrile action which followed the cerebral congestion lasted two days, and differed in no respect from ordinary milk fever. The patient began to take nourishment, and recovered as promptly and as completely as if nothing had occurred different from the usual progress of labours.

Observations.—This case, the only one of its kind with which I am yet acquainted, proves, that whilst energy remains, and no paralysis exists, the life of a patient need never be despaired of.

In the following case the disease was more intractable, but a perseverance in revulsive measures effected a cure, which nature unaided would probably not have accomplished.

Cerebral engorgement with cephalalgia and gastro-enteritis, without paralysis, cured by bleeding, cold applications, and revulsives.—M. H.... a student of law, twenty-three years of age, dark complexion, robust, sanguine, and florid, was attacked on the 6th of March, 1821, by violent head-aches, distaste for food, red tongue, frequent pulse, burning heat, and prostration of strength. I was sent for on the third day, and directed the application of thirty leeches to the epigastrium. Lemonade allowed for drink and nutriment. Diminution of symptoms. On the fourth day the tongue appeared a little less red, but the fever continued, with strong and full pulse, and the head-ache as well as the flushed face were very marked. Twenty leeches were applied in the course of the jugulars, an emollient enema given, and the same drink continued. He lost a considerable quantity of blood, with amelioration of the symptoms.

On the 5th day the head-ache returned with violence, confusion of the head, sadness and flushing of the face. The gastric symptoms were no longer present, but the frequency of pulse with a certain strength in the pulsations, and heat of the skin continued. As the patient dreaded the loss of more blood, I decided upon applying sedatives to the head and revulsives to the lower extremities. M. H.... therefore was kept almost constantly

with his feet in warm water, whilst his head was covered with a bladder half full of ice. He was put to bed as soon as the foot-bath fatigued him, but the application of the ice was never discontinued. Broth was prohibited, but lemonade and gooseberry water were allowed him at discretion.

This course, pursued with perseverance for five days, by degrees overcame the cerebral irritation, and his convalescence was soon complete. His strength was speedily reëstablished.

I confess, that had not the patient evinced so much repugnance to bleeding, I should have insisted on again applying leeches. But on the other hand, I am glad to have cured this young man without very much weakening him.

The following fact is nearly analogous, since it presents an instance of a cure of a chronic case being effected by revulsives, without the necessity of too much debilitating the patient.

Simple cerebral congestion, without paralysis, cured by revulsives.—Lemetrop, aged twenty-two years, chestnut-coloured hair, florid complexion, white skin, of rather robust make, entered one of the wards, whilst I was in attendance at Xérès, in Andalusia, the 16th of October, 1811, having experienced dizziness, and been in a state resembling intoxication for six days. I observed that he walked irregularly and with a tottering gait, his face was flushed, particularly the cheeks, and he stammered, which induced me to think at first sight that he was drunk. His appetite was excellent, pulse tranquil, and tongue natural. I prescribed twelve leeches to the neck over the jugulars, and afterwards blisters to the back of the neck. I ordered diluent regimen and demulcent drinks. A few days afterwards I administered an emetic, purgatives, and at first antimonial and then antispasmodic enemata of ether and assafœtida, all without success; the disease continued the same.

Annoyed at the usclessness of these mild measures, I prescribed at the end of a fortnight two enormous sinapisms, which entirely enveloped the legs and feet. By the next morning an improvement was observable, the stuttering had diminished. I continued the use of tartarized lemonade, occasionally containing antimony and analogous enemata, and on the fiftieth day from the time of attack he was discharged completely cured.

Observations.—It will be seen that at this period I did not much fear to use stimulants to the digestive canal, in cases of cerebral congestion. Not because I was unacquainted with gastritis, for I had then published the first edition of this work; but because I was under the impression that the impairment of the brain must also so much obtund the sensibility of the gastric passages, as to render safe the use even of the most active stimulants. I was grievously in error; I now take pleasure in admitting it, and since then experience has but too often taught me that gastro-enteritis is most frequently an attendant on cerebral affections; that most commonly the latter are induced only by a neglected gastric irritation, or one which has been aggravated by an abuse of evacuants and tonics.

I could cite more than twenty cures of cerebral affections similar to that of Lemetrop, effected by the use of large sinapisms, enveloping the whole of the legs. These cases occurred principally in Italy; but I trust that my word will be sufficient; therefore I shall pass on to another grade of the affection.

Simple cerebral engorgement, without paralysis, cured by leeches and revulsives.—John Julius Etienne Hume, twenty-six years of age, corporal in the forty-sixth regiment of infantry of the line, hair rather brown than chestnut, of robust habit of body, enjoyed good health until on mounting guard he was suddenly attacked with giddiness, ringing of the ears, and occasionally complete deafness. The continuance of these phenomena obliged him to enter the hospital of Val-de-Grace, at the end of four days, (on the 9th of Nov. 1821,) when I observed the following symptoms:—Almost entire deafness, face florid, eyes fixed and vacant, fullness and frequency of pulse, hot and moist skin, tongue slightly furred, but not red, loss of appetite, but no painful sensations in the abdomen. Directed sixty leeches to the neck. The next day, the sixth of the disease, the symptoms being but little relieved, thirty leeches were applied behind the ears, and sinapisms to the feet.

The seventh day the deafness, giddiness, and fever were diminished.—A mustard bath to the feet.

On the eighth there was tenderness about the epigastrium and left hypochondrium; tongue red at its point.—Forty leeches

were applied over the affected hypochondrium, and the gastric symptoms disappeared.

The ninth day. The head was not relieved, although the fever had abated.—Two blisters to the calves of the legs.

The tenth and eleventh days—mustard baths to the feet.—Amendment.

On the twelfth, thirteenth, and fourteenth days, no applications were made. On the fifteenth the return of the difficulty of hearing obliged me to direct another pediluvium with mustard.

Nothing further was necessary; the symptoms vanished, and the patient who had hitherto taken only lemonade, felt a desire to eat. Soups and then broths were given to him, and on the twenty-third day the cure was complete.

Observations.—This case of Hume's recalls to my mind a similar one which I had occasion to treat at Udine, in Friuli. A man was attacked with complete deafness, and seemed in a state of stupidity, although free from fever. I tried without success the application of large sinapisms, from which at this time I derived much advantage. He died suddenly, and upon examination I found two abscesses in that portion of the brain which corresponds to the petrous portions of the temporal bones. These cerebral congestions, then of frequent occurrence, seemed to me to be dependent on the influence of atmospheric heat upon men who had just left the cold and moist morasses of Holland. I have since learned that the Austrian soldiers were similarly affected in Dalmatia, soon after their arrival, and that mania often occurred.

The following fact offers to the reader a still more interesting case of cure than any which I have yet cited, as incipient paralysis had already began to appear.

Cerebral engorgement, with partial hemiplegia, cured by ice and leeches.—During the last summer, (1821,) a sergeant of grenadiers, upwards of forty years of age, tall, florid, well made, was attacked on his journey to Paris with obtuse pains in the head, and slight dizziness; the right arm became enfeebled. On his arrival in Paris the arm was much weaker, and the abdominal extremities of the same side already participated in the debility. The dizziness had increased; he could no longer walk; his ideas were disordered, and his look bewildered. Forty leeches were

applied to the base of the occiput, sinapisms to the feet, and ice to the head. An amendment ensued—the arm and leg were much better. He asserted that the feebleness of his limbs augmented and decreased, in proportion as the pain and confusion in the head were better or worse.

His appetite was good, but lemonade only was allowed him. Two days after his admission the pain in his head and the weakness of the limbs returned. Sixty leeches were again applied to the neck in the course of the jugulars, and ice to head. The symptoms disappeared, and strength was reëstablished in the hitherto half palsied limbs. The appetite was good, and aliments were allowed.

It was necessary afterwards to recur several times to the use of leeches, amounting in all to the number of one hundred and fifty; after which, he perfectly recovered in about a fortnight.

This patient presented no gastric symptoms, and the pulse was depressed rather than full and frequent. On being discharged, this man retained no traces of debility in the limbs which had been threatened with palsy. His head was perfectly well, and his appetite excellent.

Observations.—We see here the success which attends the union of both modes which I have recommended for the treatment of cerebral diseases; leaving it to the judgment of the practitioner to select that which may seem best adapted to the degree of irritation, and to the circumstances in which the patient is placed.

It would be useless here to repeat what has already been said in the *Examination of Medical Doctrines*, upon the mode of production of scirrhus, and of encephaloid tumours: they are engendered in the brain, in the same manner as elsewhere, viz. by the influence of irritation.

I have reported in my thesis, *(Recherches sur la fièvre hectique,)* some cases, to which I have given the name of *moral hectics.* They are not to be attributed to irritation of the brain alone, but also to that of the mucous membrane of the digestive organs, in cases caused by excessive study, nostalgia, and moral affections, determined by a desire to travel.

Epilepsy can only be considered as permanent irritation of the encephalon, subject to sudden exasperation. Usually they are associated with a similar affection of some other viscus, most commonly with those of digestion. It is thus that we see almost

always the loss of sense, and transient convulsions, which characterize epilepsy, occur during chronic mania, and the seat of which is unquestionable. The primæ viæ usually participate in the affection.

Catalepsy characterized by sleep, during which the muscles remain contracted, (but unconvulsed,) in the same state as when they were attacked, and with the power of maintaining any new position which may be given to the limbs, is but a perseverance of the same degree of action; catalepsy is, I say, sometimes a purely cerebral irritation, a proof of which, is the interesting case recorded at the military hospital of Montaigu, and published by Dr. Sarlandière. It lasted seven months, during which, the patient incessantly had winking of the eyelids, a positive sign of encephalic irritation. The rest of the encephalo-rachidian muscular apparatus was in a state of immobility, save those of the trunk, which performed the function of respiration. But they were at no time indisposed to act, since in their cataleptic state they invariably retained the position in which they were placed. It seems to me impossible to misconceive in such a case, a permanent activity of that portion of the encephalon which presides over muscular contraction, and this activity is a state of irritation. Are we not led to the conclusion, that if the contraction be neither increased or diminished by the influence of an external power, it is because that portion of the brain in which the will resides, enjoys less activity than that part which presides over muscular action; in other words, is not irritated to the same degree? In this case the muscles of the eyelids were in constant action, and doubtless we shall be presented hereafter with cases in which that action will be observed in some other part of the locomotive structure. However, if it be denied that there are distinctions of place in the brain for the will and muscular motion, the existence of cerebral irritation in the disease under consideration cannot be doubted, and that is sufficient to determine its physiological nature, and point out the curative indications.

The cataleptic patient of the Montaigu hospital, recognised the flavour of food and medicines when put to his lips; he eagerly seized upon those which afforded him pleasure, and obstinately repulsed all others; and thus they succeeded in nourishing him. The sense of taste then, as well as the muscles, was disposed to act under the influence of an external power, which affords another

reason for believing in the existence of a cerebral irritation which had not produced complete engorgement.

The patient became more profoundly lethargic, when the external stimulations to which he had been accustomed, were neglected; such especially as tickling the soles of his feet; he was then much less sensible to the flavours of aliments, and would have refused them, had not the ordinary stimulant practice been renewed. The new attitudes given to his limbs were also retained a much shorter time. The irritation in the brain was perpetually tending to increase, and but for the judicious prosecution of remedial measures, the unfortunate patient must have infallibly perished from apoplexy. This long and dangerous disease terminated in scurvy, which may furnish new matter for future reflexions.

This fact appears to me to abound in theoretico-practical inductions, and I shall not fail to return to it, when I engage in the publication of my *Physiology*.

Tetanus presents to us another irritation, which seems in the opinion of the best physiologists rather to affect the spinal prolongation of the brain than the brain itself. But if the irritation increases, it attacks the brain, and it appears to me that death is as much attributable to this cause as to the exhaustion resulting from the state of spasm. I shall not here undertake the discussion of this disease; my object has been sufficiently answered by designating the place which cerebro-medullary affections should hold in a physiological nosology.

END OF VOL. I.